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ABSTRACT

A 28-day visit to the People's Republic of China during June and July 1978 by the Rural Health Systems Delegation from the United States, sponsored by the Committee on Scholarly Communication with the People's Republic of China, resulted in an exchange of information about rural health policy and planning. Specific areas of emphasis included: common disease patterns; community health; financing of medical care; ambulatory and hospital care; barefoot and traditional doctors; traditional medicine; training and education of nurses and doctors; surveillance and antiepidemic work; birth planning, diffusion of health and birth planning innovations; and mental illness. Achievements noted were preventive work and antiepidemic services. However, medical records and statistics lacked standardization. Barefoot doctors, paraprofessionals with varied but limited medical training who perform certain health duties, evoked mixed reactions. Blending the old and traditional methods with new and scientific medical techniques produced puzzling aspects. Practitioners of traditional medicine seemed to accept biomedical orientations of Western medicine, yet often employed contradictory approaches. Generally, China was judged as achieving a momentous triumph in caring for its vast rural population. Appendices give the itinerary and hosts in China, contents of medical kits of barefoot doctors, and sample medical forms. (AW)

RURAL HEALTH IN THE PEOPLE'S REPUBLIC OF CHINA

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ITINERARY OF THE RURAL HEALTH SYSTEMS DELEGATION
June-July 1978

RURAL HEALTH IN THE PEOPLE'S REPUBLIC OF CHINA

Report of a Visit by the
Rural Health Systems Delegation
June 1978

Committee on Scholarly Communication
With the People's Republic of China

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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The views expressed in this report are those of the members of the Rural Health Systems Delegation and are in no way the official views of the Committee on Scholarly Communication with the People's Republic of China or its sponsoring organizations—the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council—or of the Fogarty International Center, the National Institutes of Health, the Department of Health and Human Services, or any other agency of the Federal Government.

The visit of the Rural Health Systems Delegation to China was supported by a grant from the Department of Health and Human Services. This visit was part of the exchange program of the Committee on Scholarly Communication with the People's Republic of China founded jointly in 1966 by the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council. Sources of support for the committee are the National Science Foundation, the International Communication Agency, the National Endowment for the Humanities, the Ford Foundation, and the Rockefeller Foundation.

The committee represents American scholars in the natural, engineering, and medical sciences, and the social sciences and humanities. It advises individuals and institutions on means of communicating with their Chinese colleagues, on China's international scholarly activities, and on the state of China's scholarly pursuits. Members of the committee are scholars from a broad range of fields, including China studies.

Administrative offices of the committee are located in the National Academy of Sciences, Washington, D.C.

Editor's note: Mandarin terms have been Romanized according to the pinyin system in the *Chinese English Dictionary*, Wu Jingyong, ed., Hong Kong: Commercial Press, 1979. Taiwanese and Cantonese terms have been retained in their original phonetic translations.

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Foreword

Since 1969 the Fogarty International Center has been publishing documents designed to promote a broader awareness and knowledge of the health research and care systems of other countries to serve as a background for enhancing mutually beneficial international collaborative scientific relationships. The Center's earliest studies dealt with the Soviet Union's programs in biomedical research and public health. Subsequent ones have been published on the United Kingdom and countries of Scandinavia and Latin America.

In 1970, research was initiated on biomedical research and health activities in the People's Republic of China. Since that time, the Center has published 14 reports and studies concerning this country.

Rural Health in the People's Republic of China reports on some of China's less familiar areas. They were visited by a group of specialists in several fields of medicine, health care delivery, and the social sciences. The resulting observations and accounts of interviews with people at all levels of the Chinese health system provide a valuable addition to our steadily increasing knowledge of life in the People's Republic and suggest areas for further study by other visitors.

We are pleased to make this report available to a wide audience through publication by the Fogarty International Center.

Vida H. Beaven, Ph.D.
Acting Director
Fogarty International Center

Preface

The Rural Health Systems Delegation visited China in June and July 1978 as part of the exchange program between the Committee on Scholarly Communication with the People's Republic of China (CSCPRC) and the Scientific and Technical Association of the People's Republic of China. The CSCPRC is sponsored jointly by the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council.

This program began in 1972 and has included an exchange of delegations in many fields of scholarly endeavor, including natural sciences, medicine, engineering, and the social sciences and humanities. The Scientific and Technical Association of the People's Republic of China coordinates the overall exchange program in China but turns over hosting responsibility to other organizations, such as the Chinese Medical Association, which was the host for the Rural Health Systems Delegation.

Represented on the delegation were professionals in health systems planning and administration, including urban community and rural health services; internal medicine; nursing; epidemiology and infectious diseases; psychiatry; and pediatrics. Also included were social scientists specializing in sociology, particularly rural sociology and population policy. The group was chosen to represent a broad spectrum of concerns in rural health policy and planning in the United States, in developing countries, and in China. The particular combination of medical specialists and sociologists helped produce this report, which is wide-ranging in its coverage of subject matter.

The visit to China was funded by a grant from the Department of Health and Human Services. The Committee on Scholarly Communication with the People's Republic of China expresses its appreciation to HHS for their continuing support of CSCPRC medical exchange programs.

Patricia Jones Tsuchitani
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Overview of Rural Health in China

George I. Lythcott

For three decades scientific and cultural exchanges between the United States and the emerging People's Republic of China were almost nonexistent. Now, however, official diplomatic relations between the two countries have resumed, and on June 22, 1979, representatives of each nation signed a 5-year protocol for cooperation in the science and technology of medicine. This protocol establishes a framework for collaboration in every area of health, from biomedical research through health service delivery.

Establishing the foundation for this officially sanctioned cooperation has been a project of the Committee on Scholarly Communication with the People's Republic of China (CSCPRC). The CSCPRC's pioneering work began in 1966, and the first fruits of its efforts were the visits of Chinese medical and general scientific delegations to the United States in 1972.

This report is an account of a 28-day visit to China by the Rural Health Systems Delegation, sponsored by the CSCPRC. Our team's visit was part of a broader mosaic of information exchange made possible by the committee's dedicated work on this frontier, and we would like to express our admiration for their enterprise in the field of Sino-American scientific cooperation. Their efforts have been instrumental in helping to usher in a new era of cooperative relations between the two nations.

Our visit to China took place between June 7 and July 1, 1978. Members of the delegation, who were carefully selected by a nominating committee with a broad knowledge of American scholars and institutions in the health field, represent a spectrum of expertise in various public health and social science disciplines.

So brief a visit cannot be expected to yield a definitive study of China's rural health system, but that was not our purpose. We saw our mission as providing an authentic overview that would be useful to others interested in exploring aspects of that system in greater depth and detail. In a sense, we were not only looking for answers—which we found—but for questions as well, and we found those questions in abundance.

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One of the issues we brought back concerns the communications gap that is inherent when people from two widely disparate cultures meet and talk. We found that gap particularly vexing whenever we asked our hosts to explain aspects of Chinese traditional medicine, with which most of us were understandably unfamiliar.

China's ancient system of medicine has many theories alien to those of us trained in the theories of Western medicine. Several members of our delegation heard concepts of disease explained in terms seemingly designed to make Chinese traditional medicine understandable to Westerners rather than being descriptive of the actual concept or practice. Such doubts can only be resolved by future researchers who can study Chinese physicians at work and observe the clinical outcome of their treatment.

A second puzzle that again may be rooted in cultural differences has to do with the reportedly low prevalence of mental illness, according to our Chinese hosts. The statistics we reviewed in several provinces supported that assertion, but our own observations cast heavy doubt on the claim. Our psychiatrist observer saw a number of patients who would have been diagnosed in America as having some form of mental illness. Doubts were also raised by the reported incidence and prevalence figures we compared with worldwide figures. Although Heng County Hospital in Guangxi Zhuang Autonomous Region serves a population of 780,000, it reported treating only three cases of mental illness in a recent 3-year period. This is in stark contrast to the World Health Organization report of a prevalence rate for Western and non-Western nations—for schizophrenia alone—ranging from 2 to 10 per 1,000.

We returned with another question: How effective is combined treatment with Western and Chinese traditional medicine? The late Chairman Mao Zedong encouraged this approach, yet its value has not been demonstrated to our satisfaction. Our hosts told us that it has been shown to be empirically effective, but we found no evidence to support their claim in the form of followup studies on patients so treated. We think that studies of this type offer intriguing possibilities for the future.

Two general cautions should be kept in mind:

- Postrevolutionary China is a society in the process of change, and the perspective with which we returned may not prove to be valid as time goes on. While we were there, for example, we heard high praise for the barefoot doctors. But newspaper accounts based on the observations of other health officials who visited China later indicated that the barefoot doctor concept may be in the process of being downgraded. According to these accounts, Chinese medical officials no longer praise these independent practitioners of primary care, and many peasants insist on bypassing them and going directly to a county hospital for primary care.
- One must avoid transposing lessons from the Chinese rural health care experience to America. The Chinese approach has limited application

here because it has evolved from a culture, history, and political and economic system vastly different from ours. There may indeed be lessons we can learn from China—or China from us—but one should search for them in the firm knowledge that the two systems have evolved from a set of underlying conditions that offer more contrasts than comparisons.

A few of those differences are worth noting briefly: China is a relatively poor nation. A few years ago its annual per capita income was only $410, while ours was $7,890. This alone creates a different set of expectations among the people. It also means that everyday commodities we take for granted in the health care field are either absent or in short supply in China: CAT scanners, sophisticated X-ray machines, patient telemetering devices, and so on.

The U.S. economy is market-directed, and its health care system follows this pattern in general. China, on the other hand, is a centrally planned economy; its leaders can allocate money and manpower according to priorities they determine.

Finally, and not least, our health care system has been shaped by the theories of Western scientific medicine, while China's must incorporate both Western and Chinese traditional medicine. This amalgamation has helped to shape the design and fulfillment of the Chinese rural health care system.

Despite the caveats we have noted, one fact remains indisputably clear: our two nations can profit immensely by learning more about one another. Every nation is to a certain extent culture-bound. The methods and approaches it has evolved in developing its rural health care system are circumscribed by that nation's unique social, political, and economic legacy. To witness how another nation and culture goes about meeting a human need is also to obtain a view of ourselves that would not otherwise be revealed. It is to discover that rich vein of human alternatives available to us if we but open our minds.

The importance of international cooperation in the field of health cannot be overemphasized. The recent U.S. protocol agreement with the People's Republic of China has opened wider an exciting new set of opportunities to deepen and strengthen our ties of mutual understanding. We look forward to that era, and we thank the sponsors of our visit for the opportunity to become a part of it.

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Common Disease Patterns

Kurt W. Deuschle

The disease pattern of China is a dramatic element in the struggle of a transitional developing country contending with an enormous burden of infectious disease while facing the emergence of the chronic and degenerative diseases of a modern society. What is so impressive is the rapid disappearance of some of mankind's most serious infectious diseases as a result of the emphasis on prevention since the establishment of the People's Republic of China in 1949.

In this 30-year period smallpox, cholera, plague, and venereal diseases have been "eradicated," according to Chinese health authorities. No other country in the world has so successfully controlled venereal diseases. Schistosomiasis still exists in various rural areas, but enormous regions have eliminated this stubborn disease problem. Common infectious diseases that can be prevented by appropriate immunizations are rapidly declining. Vaccination of nearly all people in the areas visited by the Rural Health Delegation has resulted in effective control of measles, diphtheria, pertussis, tetanus, and poliomyelitis. Universal bacillus Calmette-Guerin (BCG) programs and monitoring of chronic tuberculosis cases have reduced the tuberculosis problem to a "tolerable" level.

Emphasis on water quality and general environmental sanitation has reduced water- and food-borne epidemics. Although hepatitis A and B are prevalent in China, typhoid and food poisoning outbreaks no longer present a significant health problem. Hookworm and intestinal parasitic infestations have also been controlled effectively. Although malaria, especially vivax and falciparum forms, still appears to be a threat in some of the rural countryside, a constant effort is made to combat the mosquitoes responsible for the spread of these malarial parasites.

Although accurate health statistics for the country as a whole are not available, the six provinces we visited had partial summaries of health data that document their success in dealing with the major infectious diseases. There are still new cases of Hansen's disease, and one province has at least two hospitals where Hansen's disease patients are treated and isolated. Trachoma apparently persists only in small population pockets scattered in remote rural settlements.

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When this description of infectious disease control is contrasted with that in pre-1949 China, the results achieved with prevention and treatment measures can only be given high marks. Massive health propaganda campaigns are moving the style of life in China toward preventive practices in health.

However, the Chinese have not been totally successful. Scientific technology is not yet available in any country to control such infectious disease problems as hepatitis, acute hemorrhagic fever, and the syndrome of necrotizing enteritis. On the other hand, the Chinese claim considerable success in controlling leptospirosis and Japanese B encephalitis, using domestic vaccines. Sporadic meningococcal meningitis outbreaks are managed in much the same way as in the United States.

China's pattern of chronic degenerative and neoplastic diseases and that in the United States have both striking similarities and differences. Coronary disease, strokes, and cancer head the list of diseases producing mortality in China, paralleling patterns seen in the Western countries. There is a rather impressive incidence of esophageal, stomach, and liver cancers, however, which have a selected regional distribution. Nasopharyngeal cancer also appears to be more prevalent in certain areas. More definitive epidemiologic analyses of these varying patterns of cancer would be instructive.

Cancer of the lung has not yet emerged as a leading killer, but recent smoking habits of the Chinese may increase the incidence of this condition. The Chinese do not share our concern about the effects of cigarette smoking. If the practice continues to increase in China, lung cancer and emphysema will probably increase markedly. Medical people invariably told us they believed published reports from the Western countries associating lung cancer, chronic bronchitis, and emphysema with heavy cigarette smoking. Nevertheless, there was little evidence of serious antismoking campaigns.

In the category of endocrine and metabolic diseases there were also interesting patterns of health and disease. While thyroid problems were not uncommon—especially in iodine-deficient areas—diabetes was not regarded as a significant problem. In the small unselected example of hospitalized patients we reviewed, we saw no case of diabetes as a primary admission problem.

Inasmuch as China gives preventive care top priority, it was surprising to find that rheumatic heart disease and nephritis were highly prevalent. In every hospital there were cases on both the adult and pediatric wards. Review of the management of acute pharyngitis (streptococcal disease) revealed a possible explanation of their "preventable" rheumatic disease problems. The treatment regimen consisted of streptomycin and penicillin for 3-day periods only. This was standard management in the outlying production brigade health stations up the line to nearly all the hospital clinics at the commune and provincial levels. In addition to this anomaly of care, there was no otoscopic examination for middle-ear disease. These practices will be discussed in detail in chapter 5.

Little information was available on nutritional problems. Reports of data on heights and weights of children indicated normal growth and development, but no definitive study of nutritional iron-deficiency anemia was presented to us. Iodine deficiency goiter belts have been identified, but iodized salt has been widely used to correct this condition. Perhaps the most impressive nutritional findings were the total absence of undernutrition and the extremely rare observation of obesity. Alcoholism was not apparent, although cirrhosis due to infectious disease was reported.

In summary, it should be noted that mortality rates appear similar to those in the United States, thereby demonstrating the success of prevention and control programs.

3

Community Health

Aaron Shirley

China's Rural Health System

China's health services are clearly geared toward rural health, since 80 percent of China's population lives in the countryside. Chairman Mao Zedong and the Communist Party of China formulated a policy of giving priority in medical services to workers, peasants, and children; and in 1965 the Chairman issued the call for medical and health workers to place more emphasis on rural areas. Over the past 28 years an official organizational structure of health services has been put into place in the countryside, leading to the development of an effective comprehensive health network throughout rural China. The basic structure in each of China's 2,000 counties consists of varying degrees of community health facilities at the county, commune, and production brigade levels. Each county has at least one county hospital, a maternity and child health station, and an antiepidemic station. At the county level, medical services (regular sick care), maternity and child health care, and antiepidemic work are carried out separately; at the commune level, all three services are offered at the commune hospital, making this facility more or less a general hospital.

At the production brigade level is the brigade health station (cooperative medical service), where barefoot doctors provide first-line medical services: diagnosis and treatment of common medical problems, family planning (including insertion of IUD's), delivery of noncomplicated pregnancies, immunizations, health education, and environmental health services. The typical brigade health station is staffed by two or three barefoot doctors and varying numbers of health aides.

At each level the effectiveness of these systems in reaching the masses with their services and in responding to the people is apparent. Probably the most important contributing factor is the unique (by our standards) position of the administrator in carrying out the mandate of the party in health matters. The dominant influence of the administrator at each governmental level is shown in figures 1-3.

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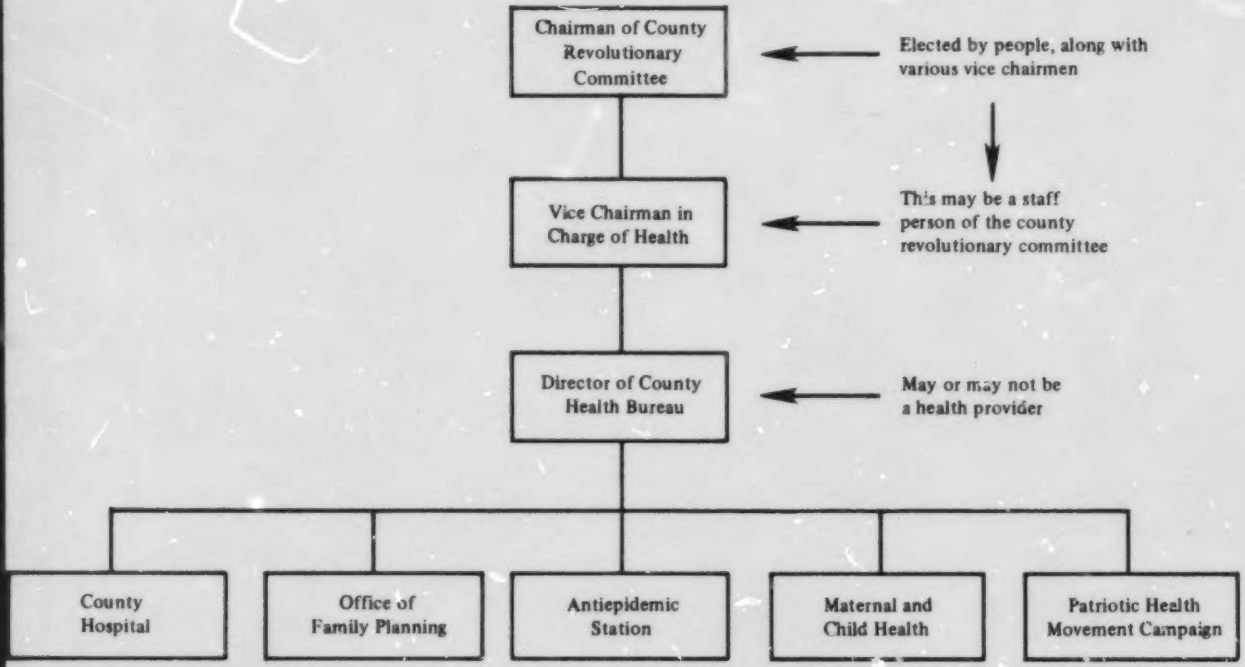
Chairman of County Revolutionary Committee
Elected by people, along with various vice chairmen
Vice Chairman in Charge of Health
This may be a staff person of the county revolutionary committee
Director of County Health Bureau
May or may not be a health provider
County Hospital
Office of Family Planning
Antiepidemic Station
Maternal and Child Health
Patriotic Health Movement Campaign

FIGURE 1. Organization of county health services.

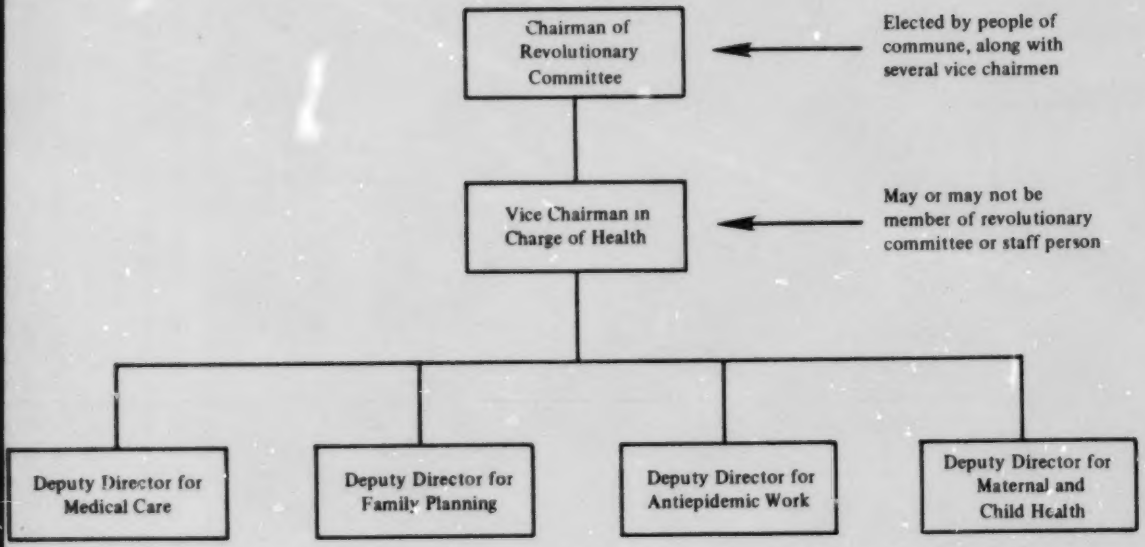
Chairman of Revolutionary Committee
Elected by people of commune, along with several vice chairmen
Vice Chairman in Charge of Health
May or may not be member of revolutionary committee or staff person
Deputy Director for Medical Care
Deputy Director for Family Planning
Deputy Director for Antiepidemic Work
Deputy Director for Maternal and Child Health

FIGURE 2. Organization of commune health services.

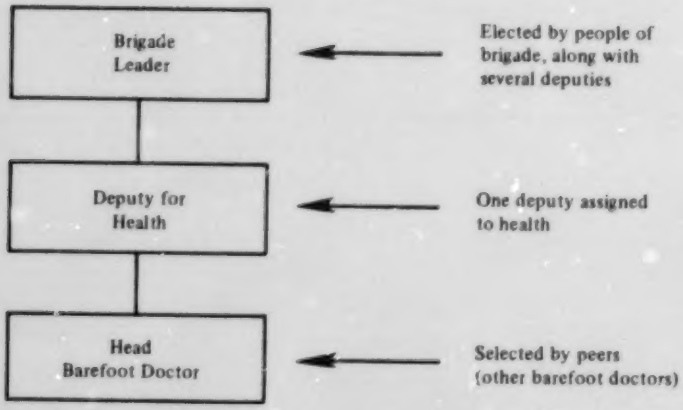
Brigade Leader
Elected by people of brigade, along with several deputies
Deputy for Health
One deputy assigned to health
Head Barefoot Doctor
Selected by peers (other barefoot doctors)

FIGURE 3. Organization of brigade health station.

Community Health Care as an Extension of Hospital Facilities

Beijing Children's Hospital (A Municipal Hospital)

It seems out of place to begin a discussion of a rurally oriented system of health care with a "secondary" hospital that serves as a teaching institution until we look at the provision of primary care services in China. The hospital furnishes general pediatric care, pediatric surgery, and infectious disease control from birth to age 14 in 600 beds divided into 20 wards. There are 2,000 outpatient visits a day from a service area population of 30,000 people.

The hospital effectively extends its primary care services into the community; it has 14 medical care stations in key areas such as schools and kindergartens, where sick children, who are seen by physicians and barefoot doctors, also receive basic preventive health measures: immunizations, intestinal parasite control, and health education. Routine visits for well-child preventive care are scheduled at 3, 6, and 9 months. Some housewives are trained to offer basic well-baby care in the community. School teachers and kindergarten workers are prepared as medical auxiliaries to provide ongoing health care in the absence of the doctors, but with their backup. Special emphasis is placed on middle schools, which serve the needs of adolescents going through sensitive development stages.

Although each health station is an actual extension of the Children's Hospital, it must develop its own health care plan for the school or district it serves,

based on local needs and priorities. However, several principles of prevention are commonly applied at all the stations, as they are throughout the primary care delivery system. These principles apparently are diligently observed by both traditional Chinese medical practitioners and those who use Western medical techniques. These principles of prevention are referred to as the "two controls" and "five improvements." The "two controls" refer to (1) drinking water and (2) body waste disposal. The "five improvements" include (1) water wells, (2) latrines, (3) animal pens, (4) lighting and cooking facilities, and (5) environmental sanitation.

The health stations draw providers from hospitals in other medical disciplines. A maternity hospital may furnish family planning and prenatal care at the community level. The typical health station outside the school or kindergarten is staffed by three or four workers selected by the neighborhood committee. The basic criteria for selection are a certain degree of intelligence, willingness to serve the people, and ability. Those selected receive extensive medical training that includes health education techniques and methods of providing routine physical examinations, vaccinations, and immunizations. These providers supplement the work of doctors; they are the bridge between hospital, doctor, and community.

In addition to their work at health care stations, the hospital doctors spend time in the countryside each year as members of mobile medical teams. These teams provide care and upgrade the skills of the physicians in the country and commune hospitals and of the barefoot doctors in the brigade health stations.

Miyun County Hospital, Beijing Municipality

Separation of the basic components of community health care, medical services, maternity and child health care, and antiepidemic work at the county level is well illustrated by the health structure in Miyun County, about 2 hours' drive from Beijing. Miyun has 380,000 people, 23 people's communes, and 330 production brigades. The hospital provides backup services for complicated cases referred from any of the commune hospitals and primary care for those who live near the hospital. Its staff of 282 includes 95 doctors and 35 nurses. The doctors regularly upgrade the competence of doctors at commune hospitals by spending time at the commune hospitals and having the commune hospital doctors work in the county hospital. The importance of the "two controls" and "five improvements" appears to be secondary only to the work of improving the diagnostic and treatment skills in these continuing medical education programs.

Visits to the Miyun County antiepidemic station gave us considerable insight into its sensitivity to prevailing local health problems. One section of the chemical laboratory there consistently monitors the iodine level in foodstuffs,

since this area is endemic for goiter. Another section of the laboratory watches the fluoride content of water supplies in response to a high incidence of tooth staining and joint deformity that might be due to excessive fluoride. Another section checks nitrate level in water. An excessive amount indicates the presence of nitrosamines, which are suspected to be carcinogenic. The laboratory also monitors the bacterial content of drinking water as well as industrial hygiene and environmental sanitation for problems identified at the county hospital level.

Luancun Commune Hospital, Chang'an County, Shaanxi

This institution typifies the rural Chinese commune hospital that provides general medical services. With a staff of 64, this 50-bed facility has an outpatient service of 100 persons a day. In addition to caring for the sick, the staff provides instruction in control of infectious diseases, the importance of immunization, family planning, maternal and child health, and environmental sanitation. Large-scale community campaigns are conducted four times a year to promote the "two controls" and "five improvements." The hospital provides backup for the 18 brigade health stations that serve the commune's production brigades. It also provides training for the 43 barefoot doctors working in the brigades, both at the hospital site and within the brigade health stations, which the doctors visit regularly.

Maternal and child health care differs from that in the United States. In the Chinese commune hospital it is primarily concerned with obstetrics and gynecology and family planning, rather than ongoing care of the newborn. The well- and sick-child care components are supplied by the barefoot doctors of the brigades, where regular well-child checkups are given every 3 months. Pediatricians from the commune hospital go out to the brigades every 6 months to provide backup and support.

The immunization program is also unusual. It is not necessarily a part of regular well-child care. One barefoot doctor in the brigade is responsible for immunizations; another may be responsible for the regular 3-month checkups. Even so, the immunization effort is nearly 100 percent effective since the barefoot doctor in charge of immunization knows personally every family in the brigade, when babies are born, and the whereabouts of every child.

Community Health at the Production Brigade Level

The Shenjiagang Brigade, located in Macongling Commune in Taoyuan County, Hunan, has 872 people in 195 households. Observing the health work at the brigade health station gave us an excellent picture of how primary care

facilities in China incorporate public health principles in day-to-day medical care.

The facility itself is crude, as were all the medical sites we visited. It has three or four regular examining rooms, two observation rooms where sicker patients can be kept for several hours, a room for obstetrical deliveries and minor surgery, a room for giving injections, a room for preparing herbal medicines, and a pharmacy dispensary. The typical day of the two barefoot doctors who work at the station begins early in the morning. Each sees an average of 15 patients a day. These doctors also make 150 home visits a month, usually to very young babies or the elderly.

One unique feature is the training and use of the five health aides who serve the brigade's five production teams. The health aides are a key link in ensuring that the health system monitors drinking water, latrines, pig sties, cooking facilities, and other sources of environmental health problems. These health aides systematically survey households, make recommendations, and assist in improvements. This activity is related directly to the clinical management of patients using the health station, for example, the treatment of recurrent infectious diarrhea in an infant. As part of the management of this condition the health aide instructs someone in the home in the proper treatment of drinking water or other potential sources of infection.

General Observations

The foregoing description of the various levels at which community health is provided in China represents only a fraction of what apparently exists in this vast land. However, some generalizations can be made from our observations.

Within the 2,000 counties and many thousands of communes we must assume considerable variation and different degrees of effectiveness. However, when one realizes the immensity of the task of providing adequate health care to so many people in the face of so many obstacles—including primitive sanitary and other environmental conditions—one can only marvel at the system's impact on the health of China's people. For instance, the system has (1) evidently immunized almost every child, (2) reduced infant mortality to the U.S. level or less, (3) all but eliminated teenage pregnancy, (4) eliminated venereal disease, (5) eliminated most flies, (6) controlled parasitic infections, (7) provided sanitary waste disposal and safe drinking water, and (8) provided personalized care for the elderly.

Although we had some doubts about the accuracy of the datakeeping and report systems, we saw enough evidence to give general credence to the accuracy of the Chinese claims. It was apparent that the effectiveness of this system is probably due to an organizational structure that, at every level, is heavily influenced by people who are not professionals in primary health care.

Their oversight has ensured a health care system that is "community" in every aspect. This in turn ensures that health services in China are readily accessible and acceptable to people.

There were similarities in the situation facing rural residents in both the United States and China in 1965, when Chairman Mao directed an emphasis on rural health care. In the United States, the lack of health professionals in rural areas made access to care difficult. Poor environmental conditions—and, in many places, poverty—created health problems as well as barriers to care. A coherent system of services, from entry level to highly specialized services, did not exist. Federal initiatives begun in the late 1960's now provide financial and professional resources and the framework for developing a comprehensive health care system for underserved populations in the United States. The U.S. Government's rural health initiative announced in October 1978 builds on and expands ongoing efforts to pay for the training of health professionals in return for service in underserved areas; to develop rural and urban primary health care delivery sites (many staffed with nurse practitioners and physician assistants) that are linked to specialty physicians and hospital services; and to develop comprehensive community health centers that include preventive and environmental health services.

Although the differences in the health care delivery systems in China and the United States are striking, there is a definite parallel in efforts to ensure access to care through the creation of effective systems of health care delivery that link entry level care to progressively specialized services and professional workers.

4

Financing of Medical Care

David Mechanic
Arthur Kleinman

Our conception of the financing of medical and other health services in China was severely limited by the diversity of situations we encountered and the paucity of information provided us. Given the broad interests of the delegation, we did not devote much time or attention to financial questions. Our most detailed information came from the lowest levels of service delivery; we encountered greater difficulties at county, provincial, and State government levels.

Cooperative Medical Service

The key financing structure of the rural health care system is the cooperative medical service. This is an insurance system in which each peasant's yearly contributions from earnings are supplemented by contributions from the production brigade's welfare fund, which is derived from agricultural income. These funds are augmented by revenues from the collection, preparation, and sale of medicinal herbs (where this is done); cost sharing among users of service; and various subsidies from the commune, county, province, and State. The numerous and varied combinations make it impossible to provide one description to fill all circumstances. For example, in some production brigades the total cost of medical care is assumed by the welfare fund, as in the Dazhai Brigade or the Zhaozhuang Brigade. No premium payments may be required, or they may vary from 40 fen (24 cents) in the Chenkequan Brigade in Miyun County, to 2.4 yuan ($1.44) in the Yanan Commune in Xinhui.

Brigades earn varying amounts from harvesting medicinal herbs and may or may not charge fees at the point of service. The production brigades we visited reported that total yearly cost per capita varies from 1 or 2 yuan to 7 or 8 yuan. Expenditures depend on the amount of drugs used and referral costs to commune and county hospitals. Most production brigades reported that 70-80 percent of the total budget goes for drugs, and referrals are minimal. Because the basic population units are small and referral of a few serious cases could be

quite costly, experience for only 1 year could be deceptive. Adequate cost data would require an average over several years. We obtained two such series from the Shangdong Brigade and the Fuwang Brigade in Heng County for 1969-77. These expenditures were so low, however, that it is difficult to interpret them.

These data seem atypical relative to other production brigades we visited. For example, the Shangdong Brigade reported a population varying from 3,488 in 1969 to 5,070 in 1977. Total costs over this period ranged from 5,652 yuan to 8,910 yuan, with a total cost of 6,406 yuan ($3,844) in 1977. Referral costs averaged less than 4 percent over the 9-year period and never exceeded 782 yuan ($469) in any year. We could not determine how much cost sharing might have been involved in referrals within this brigade. Similarly, total yearly expenditures in the Fuwang Brigade were exceedingly low, totaling 5,382 yuan ($3,229) in 1977 for a population of 4,693. One impression clearly emerges: Nowhere did we find referral charges particularly high; the greatest expenditures were consistently for the purchase of Western medicines.

In most cases we encountered, cost sharing was modest. Typically, a patient might pay a registration fee of 15 fen (9 cents) on first coming to a commune outpatient department. In one production brigade in Heng County, cost sharing for patient referral to commune or county hospitals was reported at 50 percent. This was one of the few instances of high risk of cost liability. Many production brigades in the same county required no patient cost-sharing obligation on referral. The Government subsidizes the cooperative medical service in various ways. Western drugs, for example, may be kept at an artificially low price, making it easier for the brigade health station to buy them. Vaccines and contraceptive materials are provided free, and much of the service and training of personnel by the commune, county, and provincial hospitals is subsidized. Barefoot doctors receive both their basic training and continuing education at the commune hospitals, and mobile medical teams from all institutions come to the countryside to assist in health campaigns, provide technical assistance, and promote continuing education of barefoot doctors and other medical workers.

Commune Hospitals

The Dazhai Brigade, as noted earlier, does not maintain its own health station because its members live near the commune hospital. This hospital, with 36 beds and 41 staff members, serves 11,600 people and had a budget of 26,000 yuan ($15,600) in 1977. Twenty thousand yuan came directly from the province, largely for staff salaries, while the remainder was earned in fees from the brigade cooperative medical service. Most such fees were for the outpatient department and were quite small. The registration fee there was 15 fen (9 cents), and a bed-day cost 40 fen, less food, which the patient's family

was expected to provide. Surgical fees were 8 yuan ($4.80) for an appendectomy, 5 yuan for a tonsillectomy, 8 yuan for a hernia repair, and 15 yuan for a gastric resection. Even for hospitals, drugs were the most burdensome expenditure. A typical 2-week hospitalization including drug costs might total 30-40 yuan.

A more sophisticated commune institution was the Sanyang Commune Hospital in Taoyuan County, Hunan. It organizes medical services in cooperation with each of its 15 production brigades, which comprise 22,900 people. This hospital keeps 30 percent of cooperative medical funds to provide care and to finance referrals to more sophisticated county institutions. It spent 87,000 yuan ($52,200) in 1977. It received 7,000 yuan from the State for salaries and a yearly recurrent subsidy of 10,000 yuan. In 1976 and 1977 it also received from the State a nonrenewable grant of 40,000 yuan for construction and 10,000 yuan for equipment. In 1977, 30 patients were referred to the county hospital, at a cost of 1,700 yuan. In contrast to Dazhai Commune, which had 52 barefoot doctors in 19 production brigades for fewer than 12,000 people, Sanyang Commune had only 36 barefoot doctors for almost twice the population. More cooperative medical funds were spent for barefoot doctors at Dazhai; Sanyang spent more for services at the hospital.

A third type of commune hospital is the Chuanshan Central Hospital in the suburbs of Guilin. Presumably because of its proximity to tertiary care facilities, this hospital has only 20 beds, used primarily for observation rather than inpatient care, but it reported 39,500 outpatient visits in 1977. The budget in 1977 was 70,000 yuan ($42,000), 30,000 of which came from the State, primarily for doctors' salaries. In 1977 the hospital received a nonrecurrent construction grant of 20,000 yuan. Other income sources included outpatient fees of 5 fen for each visit from commune members, fees from noncommune members, and contractual fees from local industries for insured care provided to their workers. The largest single expenditure was for drugs: 40,000 yuan in 1977.

County Hospitals

Each of China's 2,000 counties maintains a county hospital whose focus depends on the needs of the region it serves. We obtained some financial data from three such county institutions: the Chang'an County Hospital in Xi'an, the Taoyuan County People's Hospital in Hunan, and the Heng County Hospital in Guangxi Zhuang Autonomous Region.

The Chang'an Hospital serves a population of 700,000, with a staff of 208 (including 151 medical workers). It has 150 beds and sees 600 outpatients a day. Its budget in 1977 was 510,000 yuan ($306,000), of which the Government supplied 180,000 ($108,000). It obtained additional revenues through fees, drug production, and the like, and spent 269,000 yuan on drugs.

The Taoyuan County People's Hospital serves 880,000 people, with a staff of 145 (including 106 medical workers) and 200 beds. It had a total income in 1977 of 130,000 yuan ($78,000), 70,000 of which came from the County Health Bureau. In 1977 the hospital also received a 30,000 yuan nonrecurrent construction grant. This hospital serves 60 commune hospitals organized around 8 central commune hospitals. It has 4,000-5,000 inpatients a year and about 40,000 outpatients. The initial outpatient fee is 10 fen (6 cents), with an additional 5 fen for each subsequent visit.

The area also has a county hospital concerned with traditional Chinese medicine. The Heng County People's Hospital serves a population of 780,000 in 20 communes. It has a staff of 136 (including 26 5-year doctors and 57 3-year doctors). The hospital has 145 beds and treats 4,000 inpatients and 150,000 outpatients a year. Since it is in a minority area, 35 percent of the doctors are of the Zhuang minority. The hospital's 1977 budget was 390,000 yuan ($234,000), 51,000 of which was supplied by the State, largely for doctors' salaries. Revenues from fees totaled 150,000 yuan and from medications, 189,000 yuan. In 1977 the hospital received a nonrecurrent equipment grant of 6,000 yuan from the county. Unfortunately, we were unable to get data on financing of comparable institutions organized around the provision of traditional Chinese medical services.

Provincial Financing

The largest and most sophisticated institutions, as one would expect, are found at the provincial level and at hospitals associated with medical schools. For example, for the 33 million people in Guangxi, the regional hospital maintains 650 beds and has 201 doctors and 275 nurses. Most of its patients are referred from lower levels. The hospital collects 1,820,800 yuan ($1,092,480) in fees. In addition to paying the salaries of physicians on the State payroll, the State also provides a grant of 579,200 yuan.

A second example of provincial financing is the Second Teaching Hospital of the Hunan Provincial College of Traditional Chinese Medicine. Having 370 staff and 150 beds, it received 800,000 yuan ($480,000) from the provincial Bureau of Public Health in 1977. It also earned 400,000 yuan in fees for treatment, drugs, and registration payments. Most of the hospital budget was spent on drugs.

Antiepidemic, family planning, and maternal and child health programs described in chapter 12 are financed separately from curative medical care, although such efforts are functionally integrated at the county, commune, and production brigade levels. The antiepidemic station for Shaanxi's 25 million people has a staff of 204, and its 1977 budget was 2 million yuan ($1.2 million). Vaccines, disinfectant drugs, and other biological products accounted

for 80 percent of its expenditures. The provincial antiepidemic station of Guangdong Province, with approximately double the population of Shaanxi, spent between 1.3 and 1.5 million yuan on vaccines and 2 million yuan on biological products. Although the total budget was not reported, 2.5 million yuan seems a reasonable guess.

Family Planning Costs

Family planning is instrumental to China's health and development efforts; it receives high priority in financial planning. At every level, from the health aide and barefoot doctor, to the Ministry of Health in Beijing, attention and effort are focused on policy and implementation. The system of organization and planning are discussed in chapter 13. Here we simply note some financial observations: In Guangdong Province the family planning budget was 9 million yuan ($5.4 million) in 1977. These funds are then appropriated to prefecture, county, and commune levels, depending on need. For example, the prefecture (consisting of 2 cities and 11 counties in the province) makes allocations to the county. Xinhui County, with a population of 830,000, received 115,000 yuan in 1977. At the beginning of each year the prefecture appropriates 65,000 yuan to the county, making supplemental appropriations as needed. The county gives work reports to the prefecture each month. Two or three times a year higher level cadres review the budget and expenditures.

Training Costs

We did not have the opportunity to pursue the cost of medical education in China but were told at the Zhongshan Medical College in Guangzhou that the 5-year program cost 10,000 yuan ($6,000) per student. Although we did not confirm it, we assume this total includes a modest living stipend for the student.

All levels of health workers have health training duties. Hospital personnel assist in the continuing education of barefoot doctors, who in turn teach health aides; and all contribute to the health education of the masses through patriotic health campaigns, health promotion, and propaganda efforts. There is no adequate way to estimate the cost of such efforts. But much of the time devoted to this comes from "recreational" time of commune members, so it must constitute only a small cost to the system.

Beyond medical personnel, the largest single cost has been the training of barefoot doctors. Their formal training varies from 3 months to 1 or 2 years. There is, however, a system of continuing education that calls on the resources of the commune hospital and mobile medical teams. If we conservatively estimate that the average barefoot doctor receives 6 months of training (including

continuing education) and that the educational costs are one-half those for medical students for a given time, the total training subsidy per barefoot doctor would be 500 yuan ($300). Considering that the barefoot doctors also train health aides, frequently plant and harvest medicinal herbs, and do a considerable amount of agricultural work, their productivity in relation to the cost of their training and maintenance is impressive.

5

Ambulatory Care

David Mechanic
Arthur Kleinman

Interviewing Techniques

How a medical care system is organized and when and how it is used depend in part on the attitudes, beliefs, and illness behavior of those it serves. Chinese culture is rich in traditional conceptions of health, illness, and treatment practices. Much of this heritage continues in modern China, though perhaps in altered forms. Chapter 8 describes what we learned about the persistence of traditional practices. The focus here will be on the way people deal with apparent illness and their use of medical facilities.

Much of our information was obtained through 138 short interviews with patients. It appeared to us that it might be valuable to rigorously record information received from impromptu encounters as we visited hospitals. Following our brief formal introduction to an institution, we would request permission to talk with patients in the outpatient division. Dr. Kleinman asked the questions and translated. Dr. Mechanic recorded answers and suggested followup probes. After the visit we reviewed our notes to ensure that each interview was recorded as accurately as possible, filling in information we had failed to note and discounting responses we felt had been prompted by hospital personnel.

We gathered cases by selecting benches in each hospital and interviewing persons on each bench consecutively until we had completed all the available cases or exhausted our time. We gathered additional cases by observing patient-doctor encounters and interviewing both patients and doctors. For the latter interviews we concentrated on internal medicine and traditional Chinese medical clinics, attempting to select cases as randomly as possible. The institutions visited were hardly random, and we make no claims about the representative nature of the interviews. We often had problems because medical personnel who accompanied us suggested answers to patients. We also had difficulties in translation, and there was pressure to end our interviews to attend briefings or leave for our next destination. By usual social science standards, these data are very crude and unsystematic, but to use a phrase often suggested to us in China, we felt that "half a loaf was better than none."

One point should be made about privacy and informed consent. We obviously interviewed patients with the consent of medical authorities. Patients, however, were not asked for consent, and some seemed hesitant to answer in the presence of our hosts. Few refused, though many left the waiting area to avoid questioning. Although by American standards our interruption of doctor-patient encounters would be considered a violation of privacy, medical consultations in China, as in many other countries, take place in public areas within earshot of others. In China it is customary for doctors at adjacent desks to see patients simultaneously, and several patients awaiting consultations are often in the room as well. There was never any obvious embarrassment about our presence, although women were clearly reluctant to discuss female complaints with us. It is significant that most work in maternal and child care and family planning at the patient contact level in China is performed by women, whether barefoot doctors, midwives, or doctors.

Analysis of Patient Interviews

Although some of our interviews had considerable depth, most were quite short, and we were able to code successfully only nine pieces of information: sex, rural-suburban, province, type of provider, first or repeat visit, age, type of referral, and two major symptoms. We tried to code self-medication by Western and Chinese medicine, but it was often impossible to determine whether the remedies had been previously prescribed or were self-initiated. In coding, we tried to use the categories of the most common symptoms or complaints listed in the U.S. National Ambulatory Medical Care Survey (NAMCS). But because of the difference in context, the small sample, and the limited degree to which patients specified their complaints, we had to use cruder categories.

The nature of our sample may reflect the types of institutions and areas we visited. Thus, if we visited primarily commune hospitals in one province and county hospitals in another, correlations with a particular province will reflect the institutions we visited rather than anything particularly characteristic of the province. We have not presented data that we feel reflect the pattern of our visit.

Of the interviews obtained, 28 percent were in Shaanxi Province, 30 percent in Hunan, 20 percent in Guangxi, and 23 percent in Guangdong. Sixty-one percent were conducted in facilities we defined as rural, and 39 percent in facilities defined as suburban-rural. The interviews in Shaanxi (in the Xi'an area) and Guilin (in Guangxi) were coded as suburban-rural. Of the patients interviewed, 57 percent were men, 38 percent women, and the rest infants or children whose sex was not specified. Twelve percent of all interviews were obtained in traditional Chinese hospitals and 12 percent in traditional Chinese clinics in commune and county hospitals. An additional 49 percent of the

interviews took place in commune hospitals, and 20 percent in county hospitals. Only 7 percent of the interviews were obtained in production brigade health stations, despite our repeated efforts to maximize this part of the sample.

In 29 percent of the cases, patients were self-referred to the hospital; and in 15 percent a referral had been made by a barefoot doctor. In 57 percent, we could not precisely determine the referral sequence. Some of the self-referred patients had bypassed the barefoot doctor. Others were factory workers, cadres, or local residents, who used the institutional outpatient departments as their usual source of care. In 49 percent of the cases, the encounter was the first for the condition in question; for 25 percent a revisit was involved. We could make no adequate determination for 27 percent of the respondents. We had the impression that many respondents were misreporting age, which was commonly given in round numbers (50, 60, etc.); some women seemed reluctant to furnish this information. Many patients looked much older than the ages cited, but this observation may reflect our own bias rather than the reality. Fifteen percent reported ages of 14 or less; 30 percent were between 15 and 30; 30 percent between 31 and 50; 20 percent 51 or over; in 4 percent of the cases we failed to obtain the information.

Table 1 lists primary presenting complaints. Table 2 shows their combination for the purpose of cross-tabulation analysis, and the secondary complaint.

TABLE 1. Primary Presenting Symptoms or Complaints

	N	%
Cold	14	10.1
Abdominal and stomach pain	13	9.4
Pain or swelling of musculoskeletal system	11	8.0
Headache	9	6.5
Gastritis, upset stomach, enteritis, or ulcer pain	8	5.8
Cough	7	5.1
Eye problems	6	4.3
Bronchitis	5	3.6
Arthritis	5	3.6
Skin irritations or reactions	5	3.6
Wounds of skin or trauma	5	3.6
Diarrhea	5	3.6
Physical exam, checkup, or family planning advice	4	2.9
Tooth problem	4	2.9
Palpitations	3	2.2
High blood pressure	3	2.2
Heart symptoms	3	2.2
Female complaints	3	2.2
Asthma	3	2.2
Sputum or phlegm (purulent)	2	1.4
Sore throat	2	1.4
Neurasthenia or mental health problem	2	1.4
Depression	2	1.4
Hepatitis	2	1.4
Vomiting	2	1.4
Other complaints	10	7.2

As table 2 shows, most presenting complaints are for common and recurrent problems. Because most interviews took place in the southern part of China during summer, the frequency of gastrointestinal problems is not surprising. This category accounted for one-fifth of all cases, more than we would have anticipated. Colds and musculoskeletal discomfort (particularly back pain) were frequent. The secondary complaints were fairly consistent with the primary ones, although relatively more were in the categories of headache and fever, and neurasthenia. This is in part a result of the way the data were coded. For example, patients reporting sore throats might also report headaches and fever; the sore throat was coded as the primary symptom and the fever as the secondary symptom.

The final column lists NAMCS 1976 summary data for patients visiting a sample of office-based physicians. Patients seen in hospital outpatient departments or health centers are not included, as they are in the Chinese data. In the

TABLE 2. Primary and Secondary Presenting Complaints (Recategorized) As Compared With U.S. National Ambulatory Medical Care Survey

	Primary Complaint		Secondary Complaint		Percent of Office Visits, U.S. 1976*
	N	%	N	%	
Abdominal and stomach distress; diarrhea; gastritis; enteritis; vomiting	29	21	15	11	5
Cold; sore throat; cough	25	18	9	7	8
Pain or swelling of musculoskeletal system or reported arthritis	16	12	4	3	13
Headache and/or fever	10	7	16	12	3
Skin irritations or wounds or slight trauma	10	7	1	1	6
Heart problems, palpitations; high blood pressure	9	7	...	...	2
Pneumonia; asthma; bronchitis; chest complaints	9	7	6	4	4
Neurasthenia, depression, anxiety; generalized multiple complaints; disturbance of sleep	6	4	11	8	5
Eye problems	6	4	...	...	5
Followup care; progress visits	...	...	...	...	14
Others	17	12	12	9	33
No symptom reported	...	...	64	46	2

*1976 National Ambulatory Medical Care Survey. Based on data provided to the authors from the U.S. National Center for Health Statistics.

U.S. survey the physician completed a form for a sample of patient consultations, recording in the patient's own words the principal problems, complaints, or symptoms that led to the visit. Although these data have not been published, the National Center for Health Statistics provided us with a printout of the entire distribution of symptom code estimates for the U.S. population. We tried to combine them in a way that resembles the classification of Chinese data as closely as possible, but have only partially succeeded. For example, 14 percent of the NAMCS visits are for followup care and progress visits, but in the Chinese data we coded the complaint regardless of whether it was for initial or followup care. Also, in combining categories in the NAMCS data, we used many estimates based on very small sample sizes, possibly distorting the categories to some degree. The two data sets, however, give us a rough comparison of patients in the two countries.

If followup care and progress visits are excluded, there is some similarity in the relative frequency of different types of complaints. The Chinese sample reports considerably more abdominal and stomach distress, but colds, sore throats, and complaints of the musculoskeletal system are very high on both lists. Considering the larger proportion of "other" symptoms and followup care in the NAMCS, it seems apparent that the proportion of mental health problems and visits relating to the eye are more common in the American sample. Reported heart problems appear to be more common in the Chinese sample.

Relationship Between Presenting Symptoms and Other Variables

One obvious issue is the extent to which profiles of illness varied by the type of facility we visited. Certainly the logic of an organized system would argue that as one proceeds to more sophisticated and complex institutions, the seriousness and complexity of illness should increase. However, as we noted earlier, all the institutions we visited took some responsibility for primary care in their immediate catchment areas. In any case there appeared to be a great deal of self-referral to all institutions. Given the sample size, five types of facilities, and 10 symptom codes, the sample size in any cross-classification is very small, so we will review only the most obvious differences. Even these are based on all too few cases and are no more than suggestive.

The most general observation is that the entire span of illness was dealt with at all levels of care. County hospitals, for example, treated more colds and sore throats, relative to other illness, than any provider other than the barefoot doctor. Some illnesses, however, were treated at some institutions more commonly than at others. For example, most psychological problems we identified were treated at traditional Chinese medical clinics in commune and county hospitals. Although only 4 percent of all complaints were in this category, 24 percent of the patients interviewed in traditional clinics in these types of

hospitals had such primary complaints. Similarly, although 8 percent of identified secondary symptoms were in this category, 35 percent of patients in traditional clinics reported comparable symptoms. This was in sharp contrast to the traditional Chinese hospital, which had no more complaints of this kind than the sample as a whole. Interviews with patients and hospital personnel suggest that doctors in internal medicine and other specialties referred patients with psychological problems, as well as patients with chronic pain or intractable chronic illness, to the Chinese medicine clinics in the hospitals. Traditional Chinese hospitals, in contrast, were integrated into the local systems of care and had general medical care responsibilities for the localities they served. Patients who come to these hospitals with a wide range of complaints probably prefer traditional Chinese medical treatment.

There were also some other fairly distinctive differences. Although there were few cases in our barefoot doctor sample, there was a clear overrepresentation of colds and sore throats, skin problems, and slight trauma. Musculoskeletal problems and reported arthritis were treated more commonly in traditional Chinese hospitals and in such clinics in commune and county hospitals. Gastrointestinal problems were found most commonly in county hospitals, constituting 37 percent of all reported primary presenting complaints in contracts to 21 percent of the sample as a whole.

Although there were some differences in presenting complaints among men and women, they were not great. Men more frequently presented colds, sore throats, and gastrointestinal complaints; women were more likely to report heart problems, musculoskeletal problems, arthritis, psychological problems, and chest problems. Sex was not related in any appreciable degree to the type of referral or the type of provider. However, we interviewed relatively more men in rural areas and more women in rural-suburban areas. It is impossible to ascertain whether this is simply an artifact of the places visited and our procedures or whether it reflects differences in illness behavior patterns by sex in rural areas. Relatively more of the men were making first visits to the facility in which they were interviewed, while the women more commonly were making revisits. Also, more of the male patients were younger (53 percent of men were 30 years or less as compared with 34 percent of the women), while more of the women were 51 years or more (28 percent versus 15 percent).

In general, symptom profiles were similar in rural and rural-suburban areas. The rural-suburban patients reported relatively more heart problems, headaches and fever, and psychological problems, and fewer gastrointestinal problems. Although eye problems were reported exclusively in rural areas, this is because we interviewed most of the eye patients in a single ophthalmology outpatient department clinic in a rural area. In the rural-suburban areas, a larger proportion of patients were referred to hospitals by barefoot doctors; in the rural areas more were self-referred. In more than half the cases, we could not get adequate referral information to use the responses, so this finding is based on

only 60 cases. In rural areas, many cases were first visits, and more of the patients were ages 30 or younger (51 percent versus 37 percent). It is not clear whether the excess of initial visits is due to the larger sample of men in rural areas or the distinctive characteristics of rural areas.

In the 60 cases for which we had adequate information to classify respondents on type of referral, only one-third of the patients reported referral by barefoot doctors. Self-referral was most likely to occur at county hospitals and traditional Chinese hospitals, and least likely to occur at traditional Chinese clinics in commune or county hospitals. As indicated earlier, these units tend to receive referrals from other hospital departments for certain types of complaints. Some rough indication of the logic of referral can be gleaned from data indicating the proportion of first visits to revisits. One would assume that referral hospitals would see more first visits, and the data support this. Although 67 percent of county hospital patients and 53 percent of commune hospital patients were first visits for the condition, only 30 percent of the patients seeing barefoot doctors were first visits. In contrast, only 19 percent of the patients at traditional Chinese hospitals and 41 percent of the patients in traditional clinics in commune and county hospitals were first visits. These data are consistent with the profiles of symptoms and our impressions of the way these varying facilities are used.

There was some relationship between age and the facility used. Although 20 percent of the sample were 51 years of age or older, only 11 percent of the county hospital patients were in this age group. Also, patients ages 30 or younger were less likely to be seen in traditional Chinese clinics in commune and county hospitals. While 46 percent of the sample were in this age group, only 29 percent of patients seen in such clinics were in a comparable age group.

Both patients who were referred by barefoot doctors and those who referred themselves were predominantly initial visits (85 percent). In contrast, only 21 percent of the patients for whom we did not obtain adequate referral data were first visits. These patients were older on the average and more likely to have serious chronic illness. For example, they complained more frequently of heart, chest, and musculoskeletal problems, and arthritis. They were considerably less likely to complain of acute problems such as gastrointestinal upsets and colds. We suspect that this group of patients is a more appropriate client group for these referral institutions. Our difficulty in clearly characterizing their referrals into care is a product of their more complex patterns of use.

Patients making revisits were older than other respondents (71 percent as compared with 50 percent in the sample as a whole). Such patients were more likely to complain of musculoskeletal problems and arthritis, chest problems, and eye problems. The profile of symptoms by age offers few surprises. Children have more skin problems and slight trauma. Children and young adults up

to age 30 complain more frequently of colds and sore throats and gastrointestinal distress. Those in the middle adult working years, ages 31 to 50, disproportionately report musculoskeletal problems. Older patients are most likely to report chest problems.

Self-Care

Although we were unable to gather any systematic information on self-medication in our patient sample, our impression was that well under half of the patients interviewed admitted to the practice. For example, at the Xinhui County People's Hospital in Guangdong, only 5 of 14 patients interviewed had used self-medication for their present complaints. At the Yanan Commune Hospital in the same county, only two of eight patients admitted using self-treatment. These findings contrast strikingly with research reports of self-care among Chinese in Taiwan, where more than 90 percent of illness episodes received self-treatment [3]. The difference probably reflects, in part, the hospital-based setting of our interviews and the fact that officials and medical personnel accompanying us tended to deny the importance of self-care and sometimes seemed to transmit a negative view of it to our informants. This doubtless discouraged some patients from disclosing their actual practices.

In other Chinese societies (Hong Kong, Taiwan, overseas Chinese communities in the United States), diet and special foods have been found to be more frequently used in the self-treatment of illness than medicaments. This inference was supported in our five informal, unscheduled visits to production teams unaccompanied by officials or interpreters.

During those visits, Dr. Kleinman casually asked 25-30 family members about self-care practices, generally as part of polite conversation. Twenty-two answered that when they were ill they routinely used self-treatment, i.e., herbs, medicines bought from State pharmacies, diet, and special foods. Such treatment, they reported, includes balancing "hot" and "cold" qualities of the body that had been unbalanced by illness, eating special soups containing ginger, garlic, and other traditional medicinal spices, and drinking infusions of local herbs to correct problems with *yin/yang* (hot/cold) or the circulation of *qi* (vital energy) in the body.

Neither these informants, nor those interviewed during our official visits to medical facilities or several peasants' homes, admitted to a belief in the influence of gods, ghosts, or ancestors on health and health care. None said they consult spirit-mediums, fortune tellers, or other traditional Chinese folk healers, who reportedly either no longer practice or practice only in "remote areas." Our informants insisted that sacred illness beliefs and practices are held and performed only by certain old people who continue to believe in "superstitions." On the other hand, some of our informants admitted to beliefs in

fengshui (geomancy) and its influence on the fate of their health. So, although certain secular (naturalistic) folk beliefs continue in China, we saw no indications of sacred or supernatural folk beliefs and practices. But our sample was extremely small, and we spent little time with peasant families, so this observation should be treated with great caution. It may well be that sacred folk healing, because it is the object of official criticism and suppression, survives as a "hidden" local practice. Only field research in rural areas of China or interviews with large numbers of refugees in Hong Kong can determine this.

We were told repeatedly, however, that whereas former itinerant herbalists often are trained to be barefoot doctors, there are no instances of former sacred folk healers (shamans, priests, ritual experts) receiving such training. None of the barefoot doctors or health aides we interviewed reported having sacred folk healing backgrounds. So it would appear that while certain indigenous secular practitioners (e.g., Chinese-style doctors) are legitimated to practice and others are retrained to perform modern paramedical functions, sacred folk practitioners have been suppressed and are not used as a resource from which to select and train modern health care providers.

At several of the production brigades we visited, barefoot doctors noted that *mifang* (secret knowledge of herbs and other therapeutic remedies) had been criticized as a relic of the old society and had been converted to "public folk knowledge" that makes use of empirically effective local herbs and other folk therapies for the entire community. Not only do the barefoot doctors collect this information, they also share it with production brigade members for home use. Similarly, Chinese-style doctors (*zhongyi sheng*) at two of the traditional medicine hospitals we visited and in several Chinese medicine clinics in county hospitals stressed the importance of tapping *mifang* as a store of unpublished Chinese medical prescriptions. They said it could make an important contribution to the contemporary development of Chinese medicine. Several Chinese-style doctors told us of their attempts to collect *mifang* and examine the practical clinical utility of the remedies. These and other issues relating to traditional medicine are discussed in chapter 8.

We obtained further information on self-care in conversations with interpreters, drivers, hotel employees, and members of local groups we visited, most of whom were urban cadres. These people said they hesitate to consult doctors routinely unless they have a serious health problem or their children are sick, mainly because of the time and inconvenience involved in visiting health facilities. Three-fourths of these casual informants asserted that they routinely treat illness by going to local pharmacies to buy medicines that they believe will be effective or that the pharmacists recommend. They also use Western and Chinese medicines kept in the home. They consult a doctor only when such self-treatment is ineffective or the disorder is thought to be serious.

In Nanning we walked into a well-stocked local pharmacy and learned that anyone can buy antibiotics, injectable medicines, or a wide range of other

medicaments without prescription. Both Chinese and Western drugs are sold. The pharmacist repeatedly inquired about our health and indicated a willingness to suggest appropriate medication. She told us that she routinely advises clients which medicines to try after listening to their complaints. Hence in urban Chinese settings, the pharmacy would seem to be an important source of health care, much as it is in most Asian and many Western cities.

Another point about self-care is worth noting because it allows for an interesting cross-societal comparison. We asked two of our interpreters in Guilin, students at Amoy University in Fujian—the province from which most Taiwanese trace their ancestry—if children in Amoy still wear *hu-a* (magic charms), as DeGroot had reported at the turn of the century and as Taiwanese children in Taiwan still do. We were told that many wear the charms to protect their health and prevent disease. But the few remaining *tang-ki* (shamans) and *sien-sin-ma* (wise women who practice healing rituals), who formerly were as numerous in Amoy as they are in Taiwan, are strongly discouraged from practice.

At the Guangxi Nationalities Institute, a college in Nanning, Dr. Kleinman interviewed three students from 2 (Zhuang and Yao) of the 11 minority ethnic groups in Guangxi. Although these students were acculturated to the dominant Han orientation, what little we learned is worth reporting because virtually no information has been available about these groups. The students reported that shamans and other sacred folk healers, once numerous, are now much fewer in number and are actively discouraged from practicing. Traditional illness beliefs and practices are common among the older population, especially in the more remote regions. These too are discouraged as "superstitions" associated with the failings of prerevolutionary society that need to give way to modern scientific medical ideas. The only indigenous therapeutic interventions currently sanctioned are local medicinal herbs, which peasants are instructed to use according to modern empirical, rather than traditional symbolic, guidelines.

Psychological and Psychosocial Factors in Ambulatory Care

In all medical care systems, illness serves as an important and legitimate way to reduce burdensome life situations or justify personal failures. In Western systems it has been estimated that a significant proportion of patients seek physicians because of symptoms associated with psychosocial problems. Depending on cultural patterns, these patients may often openly acknowledge psychological distress or express it through vague somatic complaints or physiological concomitants of anxiety and depression. Given the pervasiveness of such problems, it is appropriate to ask how the medical care system in rural China relates to psychosocial difficulties of peasant life. (Chapter 15 deals with psychiatric practices in China.)

Life for the average peasant has improved a great deal, but it is still a hard life requiring good health, energy, and luck. Undoubtedly there are many psychosocial problems in families, teams, and brigades. Household income depends on work points earned by family members. In the rural areas there are few acceptable excuses for able-bodied workers not to do their share of the work. There is no sick leave, sickness insurance, or disability payments. The only exception is work-related accidents. A household member who fails to meet work obligations reduces the earnings of the household and thus increases the burden on others. So there must be great pressure to carry one's share of the effort.

Sickness, even without compensation, is an acceptable excuse. It is more likely to elicit sympathy and concern than condemnation from family and neighbors. The sick role is thus an important way to relieve tension and to smooth relations. The production brigade health station provides ready access to care. Chinese traditional medicine also provides both the theoretical basis and the treatments necessary to encourage a person to return to work in a face-saving way. It was therefore not surprising that many patients we interviewed had vague and unspecified stomach complaints. Many who suffered from depression, anxiety, and a variety of psychophysiological maladies (typically diagnosed as neurasthenia) were more commonly seen in the traditional Chinese clinic.

Understanding how such complaints are expressed and managed requires understanding of Chinese culture. In China the maintenance and restoration of interpersonal relationships is a central theme, and an introspective orientation is discouraged [1]. Furthermore, mental illness traditionally has been highly stigmatized (and this apparently has persisted). The Chinese thus do not have an elaborate psychological vocabulary to characterize the quality of their distress, and negative emotions appear to be muted or suppressed [3,4]. Instead, distress seems to be expressed with somatic complaints rather than in terms of depression or anxiety [2,5].

In our interviews we heard frequent reports of vegetative symptoms, which in Western cultures are usually associated with a diagnosis of depression. It was clear from our interviews that such patients were commonly diagnosed as having neurasthenia, and that they were more frequently referred—or referred themselves—to a traditional Chinese medical clinic. Some examples of such syndromes, their interpretation, and their management in nonpsychiatric settings are discussed below. (Concepts of neurasthenia as they relate to American and Chinese conceptions of diagnosis are discussed in chapter 15.)

In the Luancun Commune Hospital, we observed doctor-patient interactions in the Chinese medical clinic. The doctor staffing this clinic had received both Western and traditional training but treated patients only with herbal medication. We saw consultations with a 51-year-old mother and her 22-year-old unmarried daughter. The daughter had many presenting complaints: back pain,

headaches, breathing difficulty, and poor appetite. The mother reported that the daughter did not want to do anything and felt out of sorts all the time; she did not work in the house and did not have the energy to do outside work. The mother described her daughter's symptoms as *huoqi da* (excessive internal hot energy).[1] The girl was obviously depressed. When we questioned her, she reported depressed affect and sleep disturbance, with early morning awakening. She had begun to feel this way at age 18 when she graduated from middle school but could not trace her feelings to any personal or social difficulties. When we asked what she thought the problem might be, she denied any illness and said she had been brought to the clinic by her mother and the barefoot doctor. We asked her what might make her better, and she answered that if there were "peace in the family" she would be better. Possible family strife was not pursued in any way by the doctor. He explained that she had a Chinese illness due to an imbalance of *yin* and *yang*. Although he acknowledged her hysteria and depression, he indicated that the girl had a physical illness that must be treated with herbs, and he wrote an elaborate herbal prescription.

The mother, who was later treated by the same doctor, but independently of her daughter, complained of trouble with eating, a burning sensation in her stomach, and a feeling of wanting to throw up. She also reported headaches, cough, and occasional stomach pains, but had no problem with her chest or heart. She also reported that when she went to work she felt lack of energy, fogginess in her head, and tiredness in her legs. In response to the doctor's question, she indicated that she was not sure whether she had a "hot" or a "cold" constitution. The doctor on "reading" her pulse reported it as "high, strong, and fast." In response to our followup questions, the mother reported feeling somewhat depressed but said her illness was not the same as her daughter's, though it was made worse by her daughter's illness. She reported that 11 people in her family, including 5 children, a mother, and an aunt, lived in four rooms amid constant noise and turmoil. She had the feeling that she "couldn't work with" the problems in her family.

It would be presumptuous of us, given so little information and the possibility of misunderstandings, to analyze these cases or to attribute any general significance to the importance of the particular comments made. Some observations, however, are so consistent with many of our other observations and interviews that we can suggest them with considerable confidence.

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[1] *Huoqi da* has a precise technical meaning of pathophysiological change in traditional Chinese medical theory. But among Chinese patients it has been found to signify weakness, malaise, lack of energy, and symptoms located either in the mouth (bad taste, sore gums, thick tongue) or in the upper abdomen (a sensation of gastric burning or fullness). In patient usage it also frequently conveys a disturbed emotional state, including irritability, dysphoria, or general emotional upset [3].

First of all, at no time did we observe doctors pursuing psychosocial problems of patients to assess or manage complaints, although they readily seemed to recognize "neurasthenia" and hysterical complaints. At no time, either in assessing the patient or in treatment, were psychosocial issues seen as relevant. These complaints were always dealt with as evidence of a physical disease. Although doctors in the Chinese medical clinic used traditional concepts to explain the condition and Western-trained doctors viewed the complaints as evidence of neurological disease, the treatment always involved some form of direct medication, never any exploration of possible nonphysical influences. We have no way to assess the extent to which such issues are taken up in the context of the family or production team, nor do we know whether criticism or small group influences may be used to mediate psychosocial stress. Neither can we assess the population of problem types that these referrals come from and the way they might relate to other psychosocial problems that are not referred. What seems clear is that the medical system, for whatever reason, chooses to ignore the psychosocial dimensions of these consultations. As our data analysis indicated, there seems to be a dependence on the Chinese traditional clinic more than on internal medicine in dealing with this type of condition. Given Chinese culture and the problems of managing psychosocial issues, we are not in a position to assess whether the dominant response is appropriate or inappropriate.

During the same clinic session we saw a doctor consult with a 34-year-old man who complained of weakness, tiredness, back pain, and a constant feeling of anxiety. He also reported some depression, a poor appetite, and sleep disturbance with early morning awakening. The patient reported having troubles with other people. He thought he had neurasthenia. We observed patients with similar problems at all levels of care.

For example, in the Western-style county hospital in Taoyuan County in Hunan we interviewed a 25-year-old woman who reported a variety of complaints for "long years." More recently she had a feeling of dizziness and developed palpitations when feeling tense. She denied any affective symptoms. She reported that she had three children and much work to do. Recently she felt her heart rate quicken in response to her feeling that there was too much work for her to do. She had been treated regularly by the barefoot doctor with both Western and traditional medicines and acupuncture. She was told that her symptoms could be helped but not cured.

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6

Hospital Care

Richard C. Reynolds

Commune or county hospitals, both of which have large outpatient clinics, receive patients directly as referred from the production brigade health station staffed by barefoot doctors, health aides, and midwives. We observed inpatient care in several commune and county hospitals. Breaking into small groups, we visited hospital wards and outpatient clinics to talk with public health and preventive medicine (antiepidemic) personnel.

Medical care in China emphasizes provision of easily accessible, inexpensive ambulatory care. But during our hospital rounds we saw a number of patients whose illnesses by our standards did not require hospitalization or whose stage of convalescence suggested that the ordinary time of discharge had already passed.

Chinese physicians in county and commune hospitals routinely emphasized the blending of Chinese traditional and Western medicine for the benefit of patients. It was common to see a patient in a hospital receiving a locally made intravenous infusion of herbs with simultaneous doses of penicillin and tetracycline.

Commune hospitals serve communities with populations of 15,000 to 50,000 and usually have 15-40 beds and a staff ranging from 25 to 50, of whom approximately one-third are doctors. In commune hospitals most doctors are of middle-level grade, which means they graduated from a 3-year school immediately after junior high school. Larger county hospitals, which serve approximately one-half million people in 10-15 communes, are staffed by a preponderance of physicians who, after graduating from senior middle school, attended a 5-year medical school comparable in curriculum to U.S. medical schools.

On our visit to Luancun Commune Hospital, we made rounds with a staff physician. After graduating from middle school (equivalent to our junior high school) in 1962, she had taken a 6-year course in medical school (now abbreviated to 5 years), graduating in 1968. She was first assigned to a larger county hospital and in 1972 moved to this commune hospital. The first patient she presented to us was a 64-year-old woman with hypertensive cardiovascular disease. The patient had been admitted to the hospital with a blood pressure of

180/110, chest pain, and an electrocardiogram (EKG) with changes said to be compatible with an acute myocardial infarction. The patient was then free of pain and no longer short of breath; her blood pressure was 140/90. Her hospital record listed three EKG's that showed the evolution of an acute anterior myocardial infarction. The patient in the adjoining bed was a 14-year-old girl described by the physician as having acute rheumatic fever. Auscultation of the chest was performed by one of our delegation members, who noted a diastolic murmur at the base of the heart and an irregular rhythm that he thought was caused by frequent premature ventricular contractions. The physician confirmed this interpretation of the heart murmur but suggested that the patient had a first-degree heart block and that the extra heart beats resulted from premature atrial contractions (which were present on the EKG).

We saw several other patients, including a 63-year-old woman with rheumatic heart disease, heart failure, and chronic headaches. She was receiving herbal medicines for her headaches and a digitalis preparation for heart failure. A 44-year-old male, a cadre from one of the production brigades, had been admitted to the hospital with a blood pressure of 180/110. He received combined traditional and Western medicines (including reserpine), and his blood pressure was now 150/100. None of his symptoms would warrant hospitalization by our standards.

We were favorably impressed by this physician. She knew the history and clinical details of each of her patients. When we looked at the patient records, our interpretation of EKG's and lab data corroborated her comments. She appeared comfortable with both Western and traditional medicine; her patients, from our brief perusal, always seemed to receive appropriate Western medicine for their ailments, along with traditional medicines.

After rounds we met with the entire staff, whom we questioned about hospital services. In county and commune hospitals there is no food service. Outpatients, many of whom are in attendance at the clinics for most of the day, receive only water. Seriously ill hospitalized patients are tended by members of the family, who provide food for the patient. Obviously, there is no attempt at dietary manipulation. Patients eat what they can of whatever food is brought in.

During the discussion with the personnel of Luancun Commune Hospital we were introduced to an internist-cardiologist, a senior physician from the staff of Xi'an Municipal Hospital. Unmarried and without family, she personified the commitment of medical personnel from the large municipal hospitals and medical schools to serve the people of China. This is usually done by assigning senior personnel to the countryside, where they not only serve the rural people but also help diffuse medical knowledge from the large urban centers to the health professionals serving the people residing in the countryside.

At no time in either commune or county hospitals did we see a medical record library. Records of outpatient visits are written by physicians on small

scraps of paper and given to the patients. Patients are responsible for carrying their own records to the barefoot doctors at the brigade health station or to physicians at the hospital. Unfortunately, this seldom happens; we rarely saw any patients with their records. Hospital records were available for current inpatients, but we saw no records of earlier admissions.

Little attention is given to the privacy of patients. This bothered no one but us; one clinic physician even thought that the observing patients were able to learn from the stories of other patients' illnesses. In the hospital wards there is a similar lack of concern for privacy. There are several patients in each room. Each is assigned to a small bed, usually covered with only a thin pallet; there are no curtains or partitions between the beds. Again, interviews and examinations were openly performed—as far as we could ascertain, to no one's discontent.

To observers from the United States there are striking differences in the buildings and equipment in Chinese hospitals. The hospitals are dark, meagerly furnished, and simply constructed. In some hospitals we saw only one refrigerator and one centrifuge. Although laboratory equipment was sparse and X-ray equipment was of an early vintage, there was, nevertheless, a tidiness and precision about the technical work being done at the local commune and county hospitals.

Many of the hospital outpatient clinics for either adults or children had no otoscopes. In fact, if any were present, they were said to be in the ear, nose, and throat clinics, from which other physicians could obtain an instrument. This same observation had been made by a member of our delegation during a visit to China 5 years ago. Chinese physicians are not unaware of the need to examine the ears of their patients, but the lack of otoscopes exemplifies a major conceptual difference between the development of Chinese medicine since 1949 and medicine as it is practiced in Western countries. The Chinese have focused their resources on solving problems of access and availability of health care. They have emphasized public health and preventive medicine for the masses of people. They have eschewed creature comforts seen in modern U.S. hospitals and avoided health technologies that would compete for resources. The question remains whether they can introduce some needed technology into the existing system.

The fact that the Chinese economy could not afford a semblance of the technology we are accustomed to and the presence of an already existing traditional system of health care favored by rural Chinese provided us with many paradoxes as we reviewed health care in Chinese hospitals. In Heng County near Nanning in Guangxi we visited a county hospital of 145 beds, which has 150,000 outpatient visits and 4,000 admissions a year. The hospital has a staff of 136, with 26 doctors and 57 other health professionals (nurses, technicians, pharmacists). This hospital serves as a focus for health services to the surrounding countryside; at a given time 10-15 percent of the staff is in

nearby commune hospitals and brigade stations, where they provide direct patient care and on-the-job training for the barefoot doctor.

The chief administrator of the Heng County Hospital emphasized their attempts to unify Western and traditional medicine and the good results from this combined treatment. Between 1971 and 1977 they reported "curing" without surgery 640 patients with acute abdominal pain. Nearly 200 fractures had been treated with short splints. In the same period they had used acupuncture anesthesia on 570 patients and herbal anesthesia on 445 patients.

We visited several sections of the hospital. In the obstetrics-gynecology department we were greeted by a woman doctor who responded confidently and knowledgeably to a series of questions.

"Are there any hemorrhoids among pregnant women?"

"Sometimes, but they are uncommon."

"Fibroids?"

"The most common tumor we see."

"Premature babies?"

"Not many; a 3 percent incidence."

"Twins?"

"One to 2 percent of all deliveries."

"How many babies die in the first 2 weeks?"

"1.2 percent per thousand."

"How many in the first year?"

"1.9 percent per thousand." (These statistics refer only to this hospital's experience.)

"Who delivers at the hospital?"

"There is no selection. Most deliveries are at the commune hospitals and brigade health stations. First babies usually are delivered at the brigade stations, the difficult deliveries being sent to the commune hospital. Any woman in the county may have her baby at the county hospital, but she has to pay for it."

"Breast feeding?"

"Yes, breast feeding is done by the great majority of mothers and they do so for 1 year."

"Do you remember any patients with respiratory disease in the newborn?"

"Yes, five with pneumonia in the first 24 hours (period of time not stated)." To her knowledge there were no patients with diabetes.

On the internal medicine wards we saw a 45-year-old male who had been in the hospital 2 days with a history of upper gastrointestinal bleeding, abdominal pain, and black stools. The attending physician described a hard, irregular mass on the surface of the liver extending into the left upper abdomen. Left supraclavicular nodes were present, and anemia was noted. Presumptive diagnosis

was hepatoma of the left lobe of the liver or gastric carcinoma. One of us examined the patient and confirmed the pallor, the irregular, hard mass in the left upper quadrant of the abdomen, and the small but definitely enlarged lymph nodes above the left clavicle. The doctor planned to do liver function tests, and a GI series and barium enema. The patient had been well worked up and knowledgeably presented.

On the surgical ward we were shown a young man who had been admitted 9 days earlier with a perforated appendix and peritonitis. On arrival at the hospital, 48 hours after the onset of illness, he had a blood pressure of 90/60, a fever of 39° C (102° F), and a white blood count of 13,500. Since then he had been treated daily with penicillin, 400,000 units; streptomycin, 1 gram; and intravenous tetracycline, 1 gram. This treatment would continue for 15 to 20 days. Several members of our group examined the patient. They found marked rebound tenderness in the right lower quadrant of the abdomen and the suggestion of a mass. The patient was still very sick and most likely had an appendiceal abscess. In the United States he probably would have had immediate surgery to drain the abscess. In time this patient may represent, however, one of their "cures" of abdominal pain without surgery.

A 13-year-old boy was seen on the pediatric service. He had already been in the hospital for 5 days with bloody diarrhea and fever. He was toxic and seriously ill. The presumptive diagnosis was necrotizing enteritis, and he was being treated with intravenous tetracycline. No stool cultures had been done. We had no idea whether this patient had typhoid or some other fulminating bacillary dysentery. It was unclear how his fluid replacement was being managed. We could only hope that whatever his illness was, it would respond to the tetracycline.

Altogether we visited four county hospitals, one traditional county hospital, and six commune hospitals. The brief patient histories presented here represent a mixture of professional care of high quality and a confusing blend of Western medicine which we understood and traditional medicine with which we were unfamiliar. Despite the simple buildings, the lack of available technology, and the absence of dietary services and medical records, the patients received attentive, thoughtful, and personal care. Considering the economy and the large numbers of people in China, the existence of a health care system that is accessible to all for both ambulatory and hospital care is in itself truly remarkable.

7

Barefoot Doctors

Everett M. Rogers

China's rural health care system incorporates more health and family planning paraprofessionals than that of any other country. Among these, the key person is the barefoot doctor.[1] At the time of our visit, there were an estimated 1.8 million barefoot doctors, augmented by 4.2 million health aides and midwives. World attention has focused on the barefoot doctor, and during the 1970's the concept was introduced in Bangladesh, Botswana, Colombia, India, Indonesia, Iran, Nepal, the Philippines, and Thailand (table 1).

Curiosity about the barefoot doctor has been stimulated by the term itself, causing Dr. Bernard Berelson, a former World Population Council president, to wonder whether there would be so much Western interest in barefoot doctors if they had been called ANM's—auxiliary nurse-midwives, the term used for a somewhat similar role in the Indian health system.

This chapter is an effort to dispel the myths about barefoot doctors; to describe their origins, responsibilities, training, supervision, and relationships to those they serve; and to assess their strengths and weaknesses. It is based on what we already knew, together with observations of their work, and interviews during our visit.

How the System Began

Understanding the development of the barefoot doctor innovation and the closely related concept of cooperative medical service is essential to comprehending how the Chinese health and birth planning system works. On the eve of the Cultural Revolution, Chairman Mao Zedong issued his June 26 (1965)

[1] "Barefoot" (*chijiao*) in the expression *chijiao yisheng* (barefoot doctor) is used to emphasize that these individuals are first of all peasants (who often work barefoot in the rice fields of South China), who also perform certain health duties. In the latter role they usually wear shoes.

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TABLE 1. Health Staff and Client Ratio for Selected Units (mostly rural) in the People's Republic of China

Unit	Population Served	Number of Barefoot Doctors	Barefoot Doctor/ Rural Client Ratio	Number of Health Aides	Health Aide/ Rural Client Ratio	Number of Midwives	Midwife/ Rural Client Ratio	Number of 5-Year Medical Doctors	5-Year Medical Doctor/ Client Ratio	Number of 3-Year Medical Doctors	3-Year Medical Doctor/ Client Ratio	Number of Nurses	Nurse/ Client Ratio	Number of Hospital Beds	Bed/ Client Ratio
People's Republic of China	728,000,000 rural[a] 910,000,000 total	1,800,000	1:404	(4,200,000 health aides and midwives)	1:173			310,000	1:2,935	690,000	1:1,319	...	...	...	...
Beijing Municipality															
Miyun County	374,000 rural 380,000 total	1,700	1:220	...	...	...	...	...	...	...	...	...	...	...	...
Henanzhai Commune, Miyun County	21,000	110	1:191	...	...	...	...	...	...	...	...	...	...	15	1:1,400
Shaanxi Province															
Dazhai Commune, Xiyang County	11,600	52	1:223	...	...	...	...	...	...	...	...	7	1:1,657	...	...
Shaanxi Province	20,800,000 rural[b] 26,000,000 total	80,000 (38% female)	1:260	90,000	1:231	50,000	1:416	...	...	...	...	...	...	...	...
Luancun Commune, Chang'an County	17,430	43	1:405	...	...	...	...	...	...	...	...	11	1:1,585	50	1:349
Hunan Province	38,400,000 rural[c] 48,000,000 total	103,551	1:371	...	...	...	...	...	...	...	...	...	...	...	...
Guangxi Autonomous Region															
Chuanshan Commune (near Guilin)	18,600	45	1:413	154	1:121	...	...	9	1:2,067	3	1:6,200	10	1:1,860	...	...
Heng County	740,000 rural[d] 780,000 total	(60% female) 1,300	1:569	5,600	1:132	600	1:1,233	...	...	...	...	74	1:10,541	699	1:1,116
Taoxu Commune, Heng County	56,923	111 (22% female)	1:513	548 (46% female)	1:104	0	0	6	1:9,487	3	1:14,231	4	1:14,231	...	...
Guangdong Province															
Xinhui County	770,000 rural 830,000 total	1,250	1:616	...	...	...	...	...	...	...	...	600	1:1,383	1,700	1:488

[a]Based on an estimated total population of 910,000,000 that is about 80 percent rural.

[b]Estimated as 80 percent of the total population of Shaanxi Province.

[c]Estimated as 80 percent of the total population of Hunan Province.

[d]Estimated by subtracting the population of the town of Heng (40,000) from the total population of Heng County (780,000).

directive criticizing the Ministry of Health and demanding that greater attention be given to improving health care in rural areas. Mao's directive initiated the decentralization of the health system in rural China and prompted local experiments to find effective ways to deliver low-cost rural health care. This led to the development of the concept of barefoot doctors and cooperative medical service. Both ideas had already been tried in 1960-61 but had failed for a variety of reasons [2].

A national conference was called on August 17, 1965, to revive the idea of training large numbers of farmer-doctors as key personnel in a rural health system [8]. The basic call for barefoot doctors—the term was not yet in use—was issued in the report from this national conference:

> A rural medical force should be created to provide every production team with trained health personnel who continue to do farm work [health aides]; and every production brigade with trained medical personnel [barefoot doctors] who are practitioners part-time and who do physical work.

During the Cultural Revolution, which began in 1966, the Ministry of Health was one of the most criticized government organizations. The Minister and all six vice ministers were removed from office in June 1967, and the ministry's normal functions came to a virtual standstill. It was, therefore, unable to issue guidelines or detailed instructions for implementing a rural health system. Mao's directive caused a "breakup of the monopoly of the medical profession over health tasks" [8]. It recognized the inability of the Chinese medical profession, in terms of both attitudes and numbers, to effectively solve the problems of rural health. The profession was essentially bypassed in establishing a new health organization.

In the temporary vacuum created by a lack of central government direction after 1966, local units, motivated by the June 26th directive, engaged in innovative activities to develop an effective, low-cost rural health system. Most of these innovations failed. But in the suburban counties of the Shanghai Municipality,[2] mobile medical teams were sent from urban hospitals to train "barefoot doctors" in rural areas.

The concept of "barefoot doctors" is believed to have started in Jiancun Commune, Jianjing County, Shanghai Municipality, in 1965-66 [3]. Until this

[2]Every large city in China incorporates one or more adjacent rural ("suburban") counties into its jurisdiction. They are actually agricultural in nature, supplying the city with vegetables and other produce, and with labor. For example, the 10 suburban counties in the Shanghai Municipality have a population of about 5 million [2].

local experience, paraprofessionals resembling present-day barefoot doctors existed in these suburban counties and elsewhere in China but were called *baojian yuan* (health workers). Chairman Mao reacted favorably to an investigative report on the barefoot doctor program in Jiancun Commune in 1965-66; the barefoot doctor concept was consistent with Maoist philosophy on local self-reliance and on the belief that the highest purpose of the individual is selfless service to the people. An article about the Jiancun Commune experience with barefoot doctors, including Mao's endorsement of the concept, appeared in a September 1968 issue of *People's Daily*. Thus the Shanghai model for barefoot doctors began to be implemented nationally.

Several years of trial, experimentation, and local modification ensued before the present form of barefoot doctor emerged. Development of the idea continued during the 1965-70 period while it was being widely implemented in production brigades.

Viewed in the context of other nations' experiences with health paraprofessionals as of 1968, the barefoot doctor concept was indeed a radical innovation: barefoot doctors are not a paramedical or doctors' auxiliary, working under supervision. They are part-time workers and part-time doctors trained to diagnose and treat without assistance the common diseases peculiar to their region [8]. One would expect such a radical innovation to face stiff opposition from the medical profession, as it has in other countries where the barefoot doctor concept has been introduced, such as India. But China's Cultural Revolution had essentially "unfrozen" the health system, and the barefoot doctor concept could thus be tolerated and eventually accepted.

The other potential source of opposition was the traditional health system, which was very strong in rural China in 1968. The barefoot doctor system was not introduced in a vacuum; Sidel and Sidel [7] estimate that 500,000 practitioners of Chinese medicine (herb doctors, traditional midwives, etc.) were delivering health care in rural areas in 1966. To immediately replace these traditional practitioners with barefoot doctors would have aroused their opposition. Traditional medicine was integrated with Western medicine in barefoot doctor training, and many traditional practitioners were retrained as barefoot doctors.

With the two main potential sources of opposition neutralized, the barefoot doctor concept diffused rapidly in rural China after 1968. Cell's statistical analysis of mobilization campaigns in China [1] shows that the barefoot doctor campaign was highest in achievements, with "no shortcomings," standing uniquely as the most successful of the 36 campaigns that were investigated. This accomplishment is particularly outstanding because the other 35 campaigns included "Learn" from Dazhai, "Learn" from Daqing, the Cultural Revolution, and the "four pests," all of which are often regarded as unusually successful campaigns.

Cooperative Medical Service

Without the financial support of the cooperative medical service, barefoot doctors' health activities could not be provided. Cooperative medical service fits consistently into the Chinese political philosophy of centralized government decision-making and decentralized implementation of policy.

Cooperative medical services seem to have first developed in 1968, in Luoyan Commune, Zhuayong County, Hebei Province. The late 1960's was a period of experimentation with rural health systems by provinces, counties, and communes. Many of the initial attempts to launch cooperative medical service failed. Eventually, the present form emerged:

- Annual funding for the cooperative medical service in a production brigade comes from individuals, the production brigade's welfare fund, and the commune's welfare fund.
- If this funding is insufficient to cover all health costs for the production brigade, the commune underwrites any shortages. For example, one might imagine a production brigade whose members had an unexpectedly high rate of illness or injury in a given year. Rather than allowing the brigade's cooperative medical service to become bankrupt, the commune (whose much larger membership provides a kind of "insurance" in numbers) steps in to see that health funds are available for the rest of the year.

We found that most villagers had accepted cooperative medical service in the parts of rural China we visited. For example, in Xinhui County, Guangdong, 98 percent of the 800,000 peasants participated in cooperative medical services. Half the money came from welfare funds and the other half from individual contributions. In Yanan Commune in Xinhui County, funds for the cooperative medical service came from these sources in 1977:

Source	*Total Contributions (yuan)*	*Contributions per Individual (yuan)*	*Percent of Funds*
Individual contributions	14,448	2.4	32
Production brigade welfare funds	25,284	4.2	55
Commune welfare funds	5,500	1.0	13
Totals	45,232	7.6	100

The average individual contribution of 7.6 yuan (6,020 individuals in Yanan Commune) is about $4.56.

The members of Chenkequan Production Brigade, Henanzhai Commune, Miyun County, Beijing Municipality, contribute 2 yuan ($1.20) annually to their cooperative medical service. About 70 percent of the funds go to purchase drugs (mostly Western medicines) and the remainder pay for the charges incurred by brigade members who are referred to commune and county hospitals.

Responsibilities of Barefoot Doctors

The barefoot doctor system in China is characterized by wide diversity. Westerners' reports about the health responsibilities of barefoot doctors have therefore differed. Some visitors to China have reported that the barefoot doctor performs relatively minor medical duties, not unlike those of paraprofessional health workers in other countries. In contrast, other Western accounts picture the barefoot doctor as having much greater medical responsibilities, including, for example, performing minor operations.

These differing accounts are usually based on visits with a very small number of barefoot doctors in the suburban counties of metropolitan cities. Further, the technical competencies of many barefoot doctors in rural China are now being upgraded through an inservice training program.

Here we describe the duties of the 40 to 50 barefoot doctors we encountered in mid-1978 in the 11 production brigades, 10 communes, 7 counties, and 6 provinces that we visited. While these units tended to be somewhat above average, we believe that our conclusions about the responsibilities of barefoot doctors may be more soundly based and up to date than previous accounts by Western visitors to China.

Supervising Health Aides

One responsibility of the barefoot doctors in rural China is to supervise the work of health aides. There is usually one health aide (sometimes called a "sanitarian") or midwife in each production team. The production team consists of 100-200 individuals in 20-40 households. There may be 10 such teams in a production brigade (see table 2). Thus the 3 or 4 barefoot doctors in a production brigade typically work with about 10 health aides.

The main tasks of health aides are to:

- Improve environmental sanitation by spraying insecticides for flies, mosquitoes, and other pests; disinfect homes and latrines; and check the purity of water sources;

- Assist barefoot doctors in inoculating children;
- Assist barefoot doctors in distributing contraceptive pills and in other aspects of birth planning;
- Help carry out patriotic health campaigns;
- Provide first aid for very minor injuries and illnesses, often in the field where the health aide is working.

The emphasis of the health aides' work is prevention. They interface in the health system between paid and volunteer leaders. Aides and midwives receive no special pay for their health work, which may represent only a few days of work a month. Health aides typically receive about a month of initial training

TABLE 2. Main Elements of the Chinese Rural Health System

Unit of Government	Health/Birth Planning Organizations and Personnel
Nation	Ministry of Health
	Chinese Academy of Medical Sciences
	Research Institutes
	Planned Birth Office (of the State Council)
Province	Provincial Health Bureau
	Provincial antiepidemic center
	Provincial hospitals (general, maternity, Chinese-medicine, etc.) Medical colleges
	Provincial birth planning office
(Prefecture or district)	(District hospital)
County, population about 300,000 (ranging from about 100,000 to over 1 million)	County health bureau County hospital Antiepidemic station
	County office of birth planning
Commune (average population about 20,000)	Commune hospital
	Committee on birth planning
Production brigade (population from 1,000 to 2,000; often coterminous with a natural village)	Brigade health station and cooperative medical services
	Barefoot doctors (usually 2 or 3, including a female responsible for birth planning and maternal/child health)
Production team (population of 100 to 200 in 20 to 40 households)	Health aides (usually 1 per production team)

in first aid and sanitation plus inservice training and supervision by barefoot doctors.

Health aides usually are provided with a medical kit similar in appearance to a barefoot doctor's kit, except that it is somewhat smaller and contains fewer medicines and less equipment (appendix C). Many of the health aides we encountered were young women, often unmarried and between the ages of 18 and 25.

Patient Referral

Another function of barefoot doctors is to refer patients to the second tier in the Chinese rural health system.

A registration fee, often of 5-15 fen (3-9 cents), is charged to each patient at commune and county hospitals. No registration fee or a lower fee of 3-5 fen is charged at the production brigade health clinic by the barefoot doctor. This charge is justified as a means of preventing overuse of barefoot doctors.

Charges for drugs, X-rays, and other medical services at commune and county hospitals usually must be paid by patients who are not referred by a barefoot doctor. If the illness or injury is acute, half or all of these fees may be repaid to the patient by the production brigade health clinic (that is, by the cooperative medical service) on the recommendation of the barefoot doctor. The patient must pay all the charges for a nonacute injury or illness.

It is more convenient for a rural client to be served by a barefoot doctor at home or at the production brigade health clinic than at the commune hospital or county hospital, which may be a day's journey by foot, bicycle, or bus. Time spent in travel and waiting means a loss of work points, and hence labor income, to the individual and to the production brigade.

The effectiveness of the referral process obviously rests on the barefoot doctor's ability to diagnose. Great stress, therefore, is placed on teaching diagnostic skills to barefoot doctors and on teaching them how to decide whether to refer patients or treat them themselves.

The Miyun County health director in Beijing Municipality told us that barefoot doctors are taught always to refer a patient to the commune hospital if they are in doubt. In some cases, if the patient cannot be moved easily, a barefoot doctor can telephone the county hospital to request that a medical doctor come to the production brigade health clinic for consultation.

Barefoot doctors treat most injury and illness cases in rural China. In the units we visited, we were told that 75-90 percent of all cases are handled by barefoot doctors at the production brigade health clinic and the remainder are referred to the commune and/or county hospital.

The effectiveness of the Chinese three-tier health system rests on the ability of the barefoot doctor to make correct decisions about referral because (1) if

serious cases that should be referred are not, patient care will suffer, and (2) if barefoot doctors refer cases they are able to handle, the upper two tiers in the Chinese health system will become clogged and health care costs will rise.

A barefoot doctor in Dazhai Brigade, Shaanxi Province, estimated that he and his two colleagues see five or six patients a day. The most serious medical problem he had seen was a case of pleurisy treated 6 months previously.

A barefoot doctor in Macongling Commune, Taoyuan County, Hunan Province, reported seeing about 15 patients a day, most of them with headaches, colds and other respiratory diseases, arthritis, gastrointestinal diseases, and parasitic-intestinal diseases. No referrals to the commune hospital were made in 1977 or in the first half of 1978. The last referral, for removal of bladder stones, was made in 1976. The 4 barefoot doctors in Chenkequan Brigade, Miyun County, see about 10 patients a day. In 12 months they referred two or three patients to the commune hospital. In Taoxu Commune, Heng County, Guangxi, 76 percent of all cases are handled by barefoot doctors at the production brigade health clinics, and 24 percent are referred to the commune hospital.

Once barefoot doctors were trained and in place in Hunan Province, a new problem arose: underuse of the commune hospital's medical staff, whose salaries are guaranteed by the county health departments. The barefoot doctors were handling most of the patients at the production brigade health clinics and referring only the more serious cases to the hospitals. Provincial health officials responded by: (1) relaxing the requirement that clients be referred to the commune hospital by their barefoot doctors;[3] (2) providing commune hospitals with X-ray machines (about one-third had such equipment by mid-1978) and microscopes (about one-fourth had them by mid-1978) so that commune hospitals could handle some of the patients formerly referred to county hospitals; and (3) sending increased numbers of the commune hospital staff to production brigades as mobile medical teams to upgrade the competence of barefoot doctors.

Thus the quality of commune hospitals in Hunan was raised as a result of the full-scale implementation of the barefoot doctor concept. In addition, the provincial health departments provided many production brigade health clinics with equipment for processing herbal medicines: pill pressers, tumblers, crushers, and slicers. This equipment provided additional employment for the barefoot doctors and further reduced the cost of medicines to villagers.

[3]If a client bypasses the barefoot doctor and goes directly to the commune hospital with an illness or injury that the barefoot doctor could have handled, the client must pay the commune hospital for all the medical costs (which are not reimbursed by the cooperative medical service in the client's production brigade). Loosening referral requirements from barefoot doctors has helped to solve the financial crisis of the commune hospitals.

Treating Patients

Conflicting reports have come out of China about the types of medical procedures barefoot doctors perform. Some visitors report that barefoot doctors have performed minor operations such as abortions, sterilizations, and appendectomies. Other visitors claim that barefoot doctors in China only refer patients to the commune hospital for such medical procedures. Our delegation had an unusual opportunity to explore this issue because, unlike most previous visitors to China, we visited outlying parts of rural China as well as suburban areas and were able to interview and observe 40 to 50 barefoot doctors in various areas.

With the help of several of our delegation, we developed a series of questions to determine the technical competence of the barefoot doctors interviewed. Each was asked:

1. Do you give vaccinations?
2. Do you suture lacerations?
3. Do you insert intrauterine devices (IUD's)?
4. Do you give abortions?
5. Do you set fractured bones?
6. Do you deliver babies?
7. Have you ever performed an appendectomy?

Our general impression is that almost all barefoot doctors perform the first two functions. Almost every production brigade has one barefoot doctor who inserts IUD's, usually a female barefoot doctor. When this woman has received advanced training in maternal and child health and birth planning, she usually gives abortions and delivers babies (that is, normal births). Some barefoot doctors with advanced training also give male and female sterilizations. For example, a 27-year-old female barefoot doctor in Xiaoxincun Brigade, Luancun Commune, who has completed 6 months of advanced training in maternal and child health and birth planning, inserts (and removes) IUD's, gives abortions, and gives tubal ligations. Another female barefoot doctor in this production brigade assists in these operations, which are performed on top of the desk in the production brigade health clinic with a packed dirt floor and a single bare light bulb. Previously, an obstetrics-gynecology specialist had traveled to the brigade health clinic to supervise the tubal ligation operations performed by the female barefoot doctor with advanced training. But for the past year, she has operated without medical supervision. Of the 224 fertile women of reproductive age in the Xiaoxincun Brigade, 75 have tubal ligations.

We encountered several barefoot doctors who set fractured bones and one who had performed an emergency appendectomy. However, it is our

impression that most operations usually are performed at the commune hospital, where a blood supply is available and where the staff includes doctors who are graduates of 3-year medical schools at least.

Birth Planning

Each production brigade typically has one female barefoot doctor with special training in planned birth. She inserts and removes IUD's and can often induce abortion by means of vacuum aspiration. She also supplies oral contraceptives and condoms and maintains a record for each married woman of reproductive age regarding the number, age, and sex of children, and the type of contraceptive used.[4]

In addition to providing contraceptive and abortion services, barefoot doctors play an important role in the informational and motivational aspects of birth planning. They assist in the group planning of births at the study group, production team, and production brigade levels (as detailed in chapter 14). Through their contacts with their clients, barefoot doctors are expected to take the lead in promoting later marriage, longer birth spacing, and fewer children. Barefoot doctors are thus a vital ingredient in all aspects of birth planning in rural China.

Herb Gardening and Farm Work

Barefoot doctors typically spend about one-third of their time in health work, one-third in raising herbs, and one-third in farm work. The herb garden is usually next to the health clinic (also called a "health station") at the production brigade level. In this clinic the barefoot doctor sees patients on a regular basis. A typical production brigade has three or four barefoot doctors, each staffing the health clinic every third or fourth day, while the others are engaged in herb gardening and farm work.

The farm work performed by barefoot doctors seems to be symbolically and socially important in facilitating homophily[5] between barefoot doctors and their farmer-clients. It thus encourages more effective communication. Occasional manual work is generally praised at all levels, even for people in urban-professional occupations, as a social leveling device. A further advantage of farm work by barefoot doctors is that it guarantees full-time employment for the barefoot doctor, even when health work may be slack. The growing and

[4]Barefoot doctors are also responsible for reporting the incidence of disease to the commune hospital.

[5]*Homophily* is the degree to which two or more individuals who communicate are similar in social status, personal characteristics, values, etc. [6].

processing of herbal medicine serves functions similar to the farm work responsibilities of barefoot doctors and helps reduce health care costs.

One of the five barefoot doctors in Xiaoxincun Brigade has received advanced training in mother and child health and birth planning. Another—a 41-year-old male—was once a traditional Chinese health practitioner. Retrained as a barefoot doctor, he specializes in herbal cures and acupuncture treatments, including electrostimulation for arthritis. All five barefoot doctors in the brigade know 90 herbs and 100 acupuncture points. They farm about 120 days a year. They devote 3.5 mu (about one-fourth hectare) to herb growing, and produced 16,000 jin (8,000 kilos) of herbs in the past 3 years (prepared in bulk and as tablets and tinctures). Most of these herbal medicines are produced for use in the brigade, but some are sold.

Training Barefoot Doctors

To many foreign observers, it seems impossible that a peasant with an elementary school education can be trained in 3 to 6 months to carry out the responsibilities expected of a barefoot doctor. Certainly training is a key factor in the success of barefoot doctors in the Chinese rural health care system.

The criteria for selection are: (1) at least 6 years of formal schooling, (2) a "good class background," with preference given to children of poor and lower-middle-class parents, and (3) a commitment to serve the people [2]. Candidates are chosen by their peers in the production brigade.

Role of Mobile Medical Teams

One of the first descriptions of barefoot doctors was given by Dr. Joshua Horn [4], an English doctor living in China, who joined a mobile medical team sent from his Beijing hospital to a rural area in northern Hebei Province. One of the main tasks of the mobile team was to train the first batch of barefoot doctors, then called "peasant doctors," in November 1965. The intent was not merely to impart medical knowledge, but to evolve a new kind of socialist-minded rural health worker who would retain the closest links with the peasants and be content to stay permanently in the countryside [4].

In the late 1960's and early 1970's, an important contribution to the training of barefoot doctors was made by mobile medical teams composed of doctors and nurses from urban hospitals who lived in rural areas for periods of 3 months to a year or more. In 1978 the Ministry of Health reported that in recent years about 140,000 medical professionals and about 10 to 15 percent of all medical doctors work in rural areas as members of mobile medical teams.

For example, about 11 percent of the medical and nursing staff of Beijing Maternity Hospital go to a rural county about 50 miles north of the city, where they train barefoot doctors in birth planning and maternal and child health, supervise their work, and conduct rural surveys of specific health problems. The mobile medical teams have facilitated the rapid preservice training of barefoot doctors, upgraded rural health care, and reoriented the Chinese medical profession toward rural health problems.

Preservice Training

Barefoot doctors are usually trained in batches of 30 to 50 at the commune hospital, often in the winter season, which is slack for farm work. Their education emphasizes a practical approach to learning and teaching, with most instruction given by Chinese and Western-type doctors of the commune hospital. Experienced barefoot doctors are frequently used as instructors.

The preservice training of barefoot doctors typically includes:

- Anatomy and physiology, including pig dissection;
- Bacteriology, such as identifying germs in contaminated water, recognizing the eggs of worm parasites in excreta;
- Pathology;
- Environmental sanitation, including the construction and maintenance of latrines, management of feces, and purification of drinking water;
- Epidemiology, including transmission of infectious diseases and their diagnosis;
- Clinical medicine, including use of the stethoscope, measuring blood pressure, taking a medical history, diagnosis of common diseases, sterilization of needles and syringes, and administering injections;
- Acupuncture, including memorization of 40 to 50 acupuncture points;
- Use and dosage of 40 to 50 drugs, including both Western and Chinese medicines (such as herbal medicines);
- Examination of patients to gain experience at diagnosis;
- Birth planning, including training in contraceptive methods and abortion;
- Care of pregnant mothers and birth delivery.

Preservice training of barefoot doctors in rural China varies widely; we encountered one barefoot doctor who had received no preservice training (a situation that was remedied after several years of practice). Most have at least 3 months initial training, and many receive 6 months.

The wide diversity of the health system has led some visitors to conclude correctly that "the Chinese health care system is decentralized so much that it is a non-system" [2].

The initial variety of approaches to the barefoot doctor program in the late 1960's and early 1970's is gradually giving way to somewhat greater standardization in training and other procedures, but a great deal of diversity continues. For example, barefoot doctors' manuals are somewhat different in various parts of China, perhaps because many were written by selected barefoot doctors with the occasional help of student-writers.[6] Furthermore, the exact diseases that barefoot doctors are trained to diagnose and treat vary according to the incidence of local diseases.

"The Chinese have short training periods for barefoot doctors to minimize initial investment, spread out the total investment, and get services off the ground as soon as possible" [2]. Obviously, this quick startup must be followed by on-the-job training to improve the technical competence of barefoot doctors over the longer range.

Inservice Training

Inservice training policies, like preservice training, differ widely in rural China. We learned of barefoot doctors who traveled twice monthly to their commune hospital for training in Western medicine and once monthly for training in herbal medicine. In addition, an occasional 1-day training course was given on such special topics as setting fractures, treating drinking water, providing inoculations, and treating snakebites.

Since the mid-1970's, when most of China's barefoot doctors were trained and in place, greater attention has been given to upgrading their technical qualifications through advanced specialized training courses. One kind of specialized training covers maternal and child health and birth planning. Most of the production brigades we visited had one barefoot doctor with such training, usually a married woman. Other special instruction is given in herbal medicine and acupuncture, or other topics. Specialized training courses span 3 to 6 months. Advanced training also facilitates greater specialization among the three or four barefoot doctors in a production brigade: one handles maternal and child health and birth planning work, another specializes in herbal medicine and acupuncture, and so forth.

The advanced training of barefoot doctors is more likely to be provided in county or provincial hospitals than is their initial training, which is mainly furnished in commune hospitals. For example, 43 barefoot doctors in Luancun Commune had received their advanced training as follows:

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[6]However, the *Chijiao Yisheng Shouce* (Barefoot Doctor Handbook) published in 1970 in Hunan Province seems to be widely available.

Training Site	*Number*
Commune hospital	20
May 7th University	7
County hospital	6
Shaanxi Provincial Hospital (in Xi'an)	10
Total	43

Strengths and Weaknesses of Barefoot Doctors' Performance[7]

Our delegation felt that it might have gained a more realistic assessment of the strengths and limitations of barefoot doctors than certain romantic advocates of this model in the West have previously reported. We concluded that China's barefoot doctors are not the paramedical superhumans that some previous accounts might lead one to expect. Barefoot doctors make mistakes in diagnosis, in referral decisions, and in treatment (we will document several of these). Most of their patients have colds and other minor problems or chronic disorders, like hypertension or arthritis. Serious medical problems are rare. In many of our briefings at commune and county hospitals and in the Ministry of Health, we were told that barefoot doctors were not the ultimate solution to China's health care delivery problems. We were told that barefoot doctors require upgrading in technical knowledge and skills, and that eventually better trained barefoot doctors and physicians will deliver some of the primary health care barefoot doctors now provide. Indeed, upgrading was under way in the communes and rural counties we visited. The technical skills and competence of barefoot doctors vary greatly, partly because some have received advanced inservice training while others have not.

When a barefoot doctor in Miyun County emptied her medical kit, she could not explain to us the uses of chlorpromazine, one of the 15 medicines she carried. We noted similar gaps in knowledge on at least two other occasions. Barefoot doctors did not appear to understand the uses and toxicities of some of the few drugs they carried. Further, they carried certain medications (for example, injectable chloramphenicol) whose use would seem dubious for the primary care provided by barefoot doctors, and which could cause potentially serious side effects.

One of the staff members accompanying us, a former barefoot doctor in Heilongjiang Province, reported that she and her colleagues were acutely aware of their own inadequacies, which they feared would be exposed in the course of treating patients, leading to poor therapeutic results, and that peasants

[7]This section is based on a draft prepared by Dr. Arthur Kleinman.

would devalue their services and seek help from doctors at the commune hospital. For example, this former barefoot doctor reported that on several occasions because she had misdiagnosed pneumonia as a cold, she had not provided the needed antibiotic coverage.

In Chuanshan Commune near Guilin, a barefoot doctor had initially diagnosed the illness of a 60-year-old woman as arthritis. When this patient was referred to the commune hospital, the diagnosis was established as tuberculosis of the bone, and appropriate treatment was instituted. The barefoot doctor visited her home daily to watch for signs of a relapse or related problems.

As we observed barefoot doctors working with patients, some of the doctors in our delegation did not feel that several of the diagnoses were completely adequate or correct.

We asked a number of barefoot doctors how they would diagnose two hypothetical cases: (1) a 14-year-old boy who had had a pain in the lower right side for 1 day, and who had a fever, and (2) an 8-year-old child with a temperature of 36° C (101° F), sore throat, and red, swollen tonsils, with pus on each tonsil. Most correctly diagnosed the first case as appendicitis but varied in their responses as to what drugs they would administer and how they could know when to refer the boy to the commune hospital. The small child was variously diagnosed as having acute tonsillitis or a sore throat, and penicillin, aspirin, and/or streptomycin were recommended.

We have already pointed out the costs and dangers of incorrect diagnoses on such referrals of patients to commune hospitals. Nevertheless, we feel that the strengths and shortcomings of barefoot doctors' performance we witnessed are about what one might realistically expect, given their training and supervision. Production brigade, commune, and county leaders universally expressed their great appreciation for the primary health care services delivered by barefoot doctors in a countryside where medical services had never before been delivered. We, too, recognize this great achievement.

In analyzing the Chinese rural health system, we must keep in mind that "the realistic choice for China, as for most third-world nations, is not between high-quality and low-quality services. Rather, it is between competent care for some, available at great distance and prohibitive costs, and some care for all, at a cost bearable to the masses of peasants" [2]. Obviously, China followed the latter alternative by providing low-cost health care to everyone.

The shortcomings in the technical capabilities of barefoot doctors that we have just presented must be considered in light of China's policy of health care for all. Barefoot doctors are not just physicians' assistants; they are expected to diagnose and treat common diseases without close medical supervision. Under these conditions, it is to be expected that they will make some mistakes.

Compared to other developing nations, China has not allocated above-average budgets for health. Chen [2] estimates that the 1973 national budget for health was 1.76 percent of China's gross national product, or about $1.32

per capita. These relatively modest costs are, of course, supplemented by local resources in the form of labor and financial contributions from commune, production brigade, and individuals. So the per capita cost of the Chinese health system is reasonably low. A considerable part of it comes from local sources rather than the National Government.

Barefoot doctors play a key role in keeping down the cost of health care in rural China. The barefoot doctors' salaries are paid by the production brigade. Their growing and processing of medical plants result in further savings. Most primary health care in rural China is provided by barefoot doctors, who cost much less than M.D.'s or other providers.

In short, the effectiveness of barefoot doctors should be judged in terms of their relatively low cost per patient treatment.

Rewards for Barefoot Doctors

How does the system motivate barefoot doctors to high performance in light of their lack of medical supervision?

The main reward for a barefoot doctor is "to serve the people," and this motivation was continually stressed in our interviews with barefoot doctors. A barefoot doctor receives the same income as an average farm worker in the same production brigade. For example, the barefoot doctors in Qixing Brigade, Chuanshan Commune, near Guilin in Guangxi, receive 45 yuan ($27) a month. (In comparison, nurses receive 40-100 yuan, and medical doctors 50-300 yuan.) No income is obtained by barefoot doctors from patient fees.

Certainly it is more prestigious to be a barefoot doctor than an ordinary farm worker in a production brigade. Barefoot doctors are treated with respect by their peers. Our observation of their daily clinic duties suggests that there is some monotony in their work, although it may be less routine than that of a farm worker in the same production brigade. The monotony is interrupted by an occasional training course and by the more specialized duties that result.

Upward mobility of some barefoot doctors, especially the rusticated youths from cities, is possible. For example, about 10 percent of the approximately 2,000 medical students at Zhongshan Medical College in Guangzhou were formerly barefoot doctors. One criterion for admission to this medical school is evidence (provided by a letter from one's peers in the production brigade) that the individual has displayed a willingness to serve the people.

Supervision of Barefoot Doctors

Supervision of barefoot doctors is mainly the job of the staff of the commune hospital. It is achieved through visits to health clinics (at the production

brigade level) by medical staff and short-term training meetings at the commune hospital. Also, a barefoot doctor may accompany a patient to the commune hospital in certain emergency cases.

Most production brigade headquarters buildings, where the health clinic is usually located, are linked to the commune level by telephone. This communication channel is sometimes used for supervision of barefoot doctors or for emergency referral of patients.

Barefoot doctors receive much less medical supervision than health paraprofessionals in other nations. Such minimum supervision vertically is consistent with the general pattern in China of horizontal control by peers. And as we have noted, the concept was a radical innovation in China in the mid-1960's because barefoot doctors were expected to diagnose and treat common diseases without close medical supervision. In short, they are not doctors' auxiliaries, as are health paraprofessionals in other nations.

A certain amount of mutual "supervision" is provided by the three or four barefoot doctors in a production brigade. We were informed that one of them is usually regarded as a "leading member," with a certain degree of responsibility for overseeing the work of the others. This often includes making daily assignments for health clinic duty, farm work, and herb raising. Several barefoot doctors told us that an important part of their training occurred on the job, learning from the more experienced barefoot doctors in their production brigade.

Close supervision of barefoot doctors is impossible in rural China, where the medical doctor is often located in a commune hospital 10 to 15 miles from the barefoot doctor's health clinic.

A variety of manuals have been produced for barefoot doctors in different parts of China. They describe and illustrate preventive, diagnostic, and curative techniques. The manuals are a partial substitute for close supervision by health professionals.

Barefoot Doctor-Patient Relationships

Based on observations, our general impression is that the relationship between barefoot doctors and their patients is one of respect and effective communication. The quality of this relationship is one of the strong points of the rural health system in China.

The official in charge of rural health work in Hunan Province told us that in the late 1960's, when barefoot doctors were first being trained, some peasants did not accept health care from the barefoot doctors because they did not perceive them to be competent. The potential opposition of traditional medicine practitioners was overcome by officially declaring the shamans ("witch doctors") illegal and by retraining other traditional practitioners as barefoot doctors.

Since their preservice training is short term and is provided locally at the commune hospital, barefoot doctors are seldom absent from their production brigade for long. This precludes inauthentic professionalization.[8] The main reference group for barefoot doctors is their peers, not medical professionals. The homophily of barefoot doctors with their clients facilitates effective communication and provides safety credibility[9] because they are similar enough to their clients to serve as a comparable role model. This enhances rapport and trust in the barefoot doctor-client relationship and probably encourages the client to follow the medical advice given by the barefoot doctor.

People recruited locally for paramedical training and assigned back to their place of origin upon completion of training are more likely to be content with staying in rural areas, according to Chen [2]. Other developing nations have been plagued by difficulties in motivating health workers to work and live in rural areas.

China's barefoot doctors seem to have relatively high credibility in the eyes of their clients, for several reasons:

- They are highly homophilous with their clients and are accessible 24 hours a day.
- Their primary motive is "to serve the people."
- They administer both Chinese traditional and Western medicine, and rural people place much faith in such traditional treatments as herbs and acupuncture. Many barefoot doctors—perhaps as many as one-third—were once "herb doctors" and carried their previous credibility (and perceived expertise) over into their new position.
- They are the lowest level and entry point in a three-tier hierarchical referral system, so people know there is a competent medical backup system for complicated cases that the barefoot doctor cannot handle.
- They specialize appropriately. For example, most of the barefoot doctors in maternal and child health and birth planning work are females, often married, with children, and likely to be using contraception themselves. Each production brigade typically has one such barefoot doctor and many brigades have one barefoot doctor, usually a middle-aged male, who was once a Chinese herb doctor.

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[8]The process through which nonprofessionals take on the dress, speech, or other identifying marks of professionals in their field [6]. Paraprofessionals tend to mimic the appearance, language, and other behavior of the professionals. This natural tendency may be due to the professionals' higher socioeconomic status, power, and elan. Inauthentic professionalization was reported to have occurred in Jiancun Commune, where barefoot doctors refused to go barefoot any longer and demanded white smocks [3].

[9]The degree to which a communication source is perceived as intending to convey a valid objective message, and as not having selfish motives [5].

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8

Traditional Doctors

Arthur Kleinman

Sacred Folk Medicine

Traditional Chinese healing can be divided into sacred and secular systems of folk medicine. Both flourished in China before 1949 and are found among Chinese in Hong Kong and Taiwan, the source of most of our research knowledge [4,5]. Sacred folk healing in China encompasses a wide assortment of religious experts, including shamans (*wu*), Taoist priests and magicians, various spirit-mediums, interpreters of fortune, and temple-based ritual specialists. In Taipei there were at least 800 practicing shamans (*tang-ki*) in 1975. They were outnumbered by interpreters of *qian* (fortune paper) and other temple-based practitioners. For the urban lower class and rural peasants of Taiwan, sacred folk healing is by far the major form of health care outside the family. But in China at large, it has been branded a "feudal superstition." Temples of China's Taoist-Buddhist-Confucian tradition have been closed and sacred folk healers prohibited from practicing.

There are anecdotal reports that some folk healers still practice surreptitiously in rural areas. As much was admitted to our group by local officials and peasants. But we never met anyone who had recently known a sacred folk healer or who could recall someone who had been treated by one. We heard about only "a few shamans in very remote areas." No doubt many people were reluctant to report to us information contradicting the official ideological position that folk healing was dead, and we hesitate to accept the official view without better evidence. Even if shamans and other sacred folk healers still practice secretly in some rural areas, it is hard to conceive of their playing a significant role in present-day health care. Inasmuch as Chinese folk religious beliefs and practices are diffused among the peasantry and institutionalized in local temples and shrines, a substantial amount of sacred healing could take place covertly in rural families and social networks, but we saw no evidence of this. Indeed, during casual conversations with peasant families—even when we were unaccompanied by officials or interpreters—people spoke openly about

secular folk medicine but denied that gods, ghosts, ancestors, or other supernatural agents were believed in or even regarded as a possible cause of sickness.

Some peasants told us that *fengshui* (geomancy) and bad fate still were taken into account, but these were clearly regarded as naturalistic—not supernatural—explanations, as they frequently are among overseas Chinese. Similarly, the Chinese culture-bound disorder "fright" (unexplained irritability, episodic crying, and loss of appetite, usually without fever, in infants and small children) was reported by peasants and barefoot doctors in each region we visited but was explained in naturalistic terms. In recounting these notions, our peasant informants made certain that we understood there were no longer folk practitioners who interpreted geomancy and bad fate. These impressions, like the ones recounted above, must also be interpreted cautiously. Our contacts were superficial and brief, and to regard these conversations as ethnographic interviews would be foolish. It is doubtful that anything short of actual field research will provide us with reliable evidence on these matters.

In the absence of such work, impressions must suffice. Our findings are based on (1) officially sponsored interviews with six peasant families; (2) five informal, unscheduled, "unofficial" visits to production teams by two to five members of our group (including at least one Chinese-speaking member), unaccompanied by officials or interpreter (during these visits, we casually conversed with 25-30 family members, routinely asking about several folk illness beliefs and practices); and (3) conversations with barefoot doctors and other health workers, local cadres, and public health officials.

Secular Folk Medicine

Secular folk medicine has followed a very different course in modern China. This group of healing traditions spans widely differing components. The classical stream of Chinese medicine (*zhongyi*) is an ancient literate tradition that began to professionalize and bureaucratize before 1949 [2,6]. It has achieved legitimacy in China, both as an autonomous therapeutic system and in combined practice with Western medicine (*xiyi*) [see relevant chapters in 4,7,8].

Secular folk medical practitioners included itinerant herbalists, often illiterate, who once practiced an empiric herbal tradition far removed from classical Chinese medical practice (some of them have now become barefoot doctors); bonesetters; masters of calisthenics and martial arts conducted for health purposes; masseurs; street vendors of special teas and other foods believed to have medical effects; and others [3]. Some have been retrained as modern health care providers. But few of the traditional practices have been officially "blessed." Most seem to have withered away.

Twice during our visit we saw individuals peddling local medicinal herbs on the street. One, in Guilin, furtively packed away his herbs when we began to photograph him. The other, a peasant in Guangdong, openly sold his wares at a ferry landing. Though *taijiquan* (shadow boxing) and other therapeutic calisthenics are popularly pursued, we were told that instructors of these or other folk healing disciplines neither belong to professional institutions nor practice privately. These activities are pursued as hobbies.

Observations

Our observations of folk medicine were limited to watching practitioners of the high-order, literate tradition of Chinese medicine (*zhongyi sheng*). The following comments are therefore restricted to the specialist practice of Chinese medicine in medical settings. Comments on lay folk beliefs and practices were reported in chapter 5.

Our observation of traditional Chinese medicine began with a visit to the Institute of Acupuncture and Moxibustion of the Academy of Chinese Traditional Medicine in Beijing. The existence of such a specialized institution reflects what we witnessed throughout our trip: the traditional holistic integration of Chinese medicine as a comprehensive system of general health care with multiple treatment modalities has undergone change in modern China. Chinese medicine has been professionalized and bureaucratized, leading to specialization. This fragmentation was noted at the institute, where the staff was relatively uninterested in traditional herbal, bonesetting, exercise, and therapeutic breathing techniques. In contrast, some of the Chinese medical clinics we visited in county hospitals and the First Teaching Hospital of the Hunan Provincial College of Chinese Traditional Medicine emphasized herbal and bonesetting techniques far more than acupuncture. The same disorders were treated in one place with acupuncture and in another with herbs.

These different settings of traditional Chinese medicine shared a somatopsychic rather than a psychosomatic orientation to illness. Psychosocial aspects of disease were either disregarded or treated as a result of underlying organic problems that required somatic, not behavioral, intervention. For example, we interviewed a 30-year-old female patient undergoing acupuncture treatment at the Institute of Acupuncture and Moxibustion. She had had a history since adolescence of more than 30 discrete, multiple, recurrent physical complaints involving at least nine areas of her body. Some of her problems had never been definitively diagnosed. Her history was consistent with Briquet's syndrome (hysteria). She had recently exhibited the vegetative complaints of depression with depressed affect and anhedonia as well as physical complaints. She reported problems at work and in her family. The Chinese-style doctors agreed with us that she was depressed, but they stated that acupuncture would relieve

her psychological symptoms as well as her physical symptoms. According to the doctors, the psychological disorder was the result of an underlying organic problem that would respond to acupuncture.

Similarly, doctors in the department of Chinese medicine of the Miyun County Hospital near Beijing stressed herbal rather than acupuncture treatment. They reported that patients were frequently referred to them from internal medicine with chronic illness or neurasthenia in which there were psychological problems. But the doctors treated these problems solely with herbal and other traditional Chinese somatic therapies, which they believed were specific remedies for psychological as well as physical problems, rather than with "talk" therapy.

Much the same was reported to us by a Chinese-style pharmacist preparing herbs to treat neurasthenia at the Dazhai Commune Hospital. In chapter 5, we illustrate these points with cases from the traditional Chinese medicine clinic of Luancun Commune Hospital. Of the seven cases observed in that clinic, six seemed to be cases with primary psychological problems and secondary somatization, yet the doctor gave neither supportive care nor psychologically minded treatment.

One patient was a 41-year-old man with headaches, joint pains, insomnia, "too many dreams," loss of appetite, and weakness. He also believed that some problem with his brain caused his scalp to sweat excessively. It seemed to us that this patient had a depressive syndrome associated with a fixed idea that could have been a somatic delusion. In treating him, the doctor diagnosed a skin disease of the scalp as the cause of depression. He prescribed herbal medicine that he claimed would improve the scalp problem and through it, the patient's "brain function," and in turn would cure the depression. In the entire interchange between doctor and patient, both illness and treatment were treated solely in somatic terms.

This doctor spent an average of 7½ minutes with each patient, while the Western-style doctors in the internal medicine clinic spent less than 5 minutes with each of the six patients we observed them treating. In other visits to Chinese medicine clinics it was our impression that the traditional Chinese-style doctors spent more time with their patients than did their Western-style colleagues in neighboring clinics. This has been found true in health services research in Taiwan, where Chinese-style doctor-patient consultations occupied a mean time of 7 minutes, 35 seconds, with 3 minutes, 10 seconds devoted to verbal communication and 1 minute, 47 seconds given to the doctors' explanations to their patients. Western-style doctor-patient consultations took a mean time of 3 minutes, 15 seconds, with 1 minute, 18 seconds devoted to verbal communication and 40 seconds spent in explaining [3]. Unfortunately, during our visits to clinics in China, we were unable to record even rough impressions of time spent in verbal interchange or in explaining.

Combined Practice

The Chinese-style doctor just described had been trained as a Western-style physician and took special courses in Chinese medical theory and treatment techniques. We met three individuals with a similar background and one Chinese-style doctor who had later trained in Western medicine. Although these practitioners and other Chinese-style doctors claimed to practice a "combined" treatment approach that integrated Chinese and Western medicine, each appeared to define and implement the integration differently.

For example, the doctor in the traditional Chinese medicine clinic at Luancun Commune Hospital—though fully trained in Western medicine—used only a Chinese-style physical examination with each of the seven patients we observed. He examined the pulse in the traditional Chinese style, looked at tongue and skin color, and smelled the patient's breath. He did not use a stethoscope or measure blood pressure. Even with a patient complaining of low back pain, he did not ask the patient to disrobe so he could examine the affected area. He did not palpate the spine or test for range of motion or trigger points of the pain. Instead he behaved as if he were solely a traditional Chinese physician. When we asked about this failure to combine Western and Chinese physical examinations, he admitted it was so, but justified it on the grounds that this is what patients who came to this clinic expected. In all seven cases he prescribed herbal medicines but no Western medicine. However, the concepts he used were a combination of indigenous Chinese and Western symptoms and disease categories. In one case he attributed the patient's complaints to an excess of liver "fire" but used the Chinese term (*ganhuo*) in the modern biomedical sense of hepatitis rather than in its traditional meaning. Hence this doctor's "combined practice" of Chinese and Western medicine consisted of using Western and Chinese theory, often translating the latter into the former, while applying almost entirely traditional Chinese diagnostic and treatment methods.

We obtained a somewhat different perspective on "combined practice" from our visit to the First Teaching Hospital of the Hunan Provincial College of Chinese Traditional Medicine. Founded in 1963, this hospital has more than 300 beds and 370 staff. Although it specializes in traditional Chinese medicine, the 800-1,000 outpatients who visit its clinics each day include local people who use it for primary care and emergencies. Its departments are organized along the lines of Western medical specialties: surgery; pediatrics; obstetrics-gynecology; ear, nose, and throat diseases; and internal medicine. This hospital is reported to be famous for its traditional method of healing trauma and fractures. It has an orthopedic ward with 50 beds devoted to accident cases and patients with bone diseases. In treating a wide assortment of orthopedic problems the staff uses herbal medications, traditional splinting methods, and classical exercises and manipulation, "combined" with Western medical knowledge

and methods. The doctors on this ward include individuals trained in both Chinese and Western medicine, so that both systems of orthopedics can be applied. For example, these doctors can perform open reduction of fractures and internal fixation with metal nails as well as traditional methods of closed reduction and application of mobile splints. We saw cases illustrating both types of treatment. In discussing Western medical approaches the staff used Western concepts and terms, but in discussing Chinese medical treatments they used traditional Chinese ideas and terms. However, Chinese treament concepts were often interpreted and explained from a biomedical perspective, suggesting that the two theories were not autonomous, rather that the underlying framework was biomedical science with Chinese theory (e.g., *wuxing*, five elements; *wuzang*, five body spheres) used pragmatically when traditional treatments were desired. Hence "integration" occurred within a Western medical frame work. Chinese medicine simply was used as the major treatment modality. Although traditional ideas guided its use, the ultimate rationale for diagnosis and therapy was biomedicine.[1]

On the internal medicine ward, patients with chronic glomerulonephritis, hypertension, or heart disease, and one with leukemia were treated with both Western and Chinese drugs, mostly the latter. Each case was first diagnosed according to Western diagnostic and symptom categories. Thereafter, most chronic and non-life-threatening cases were given Chinese herbal medicines. To do this, a translation was made from Western to Chinese disease categories. For example, in one case we were shown, "nephritis" was given the traditional Chinese diagnostic label "kidney deficiency" (*shen-kui*) and thereafter treated with herbal remedies held to be effective against this problem and the lack of *yang* believed to be associated with it. Of the 100,000 yuan ($60,000) this hospital spends on medicines each month, 70 percent is spent for Chinese medicine and 30 percent for Western medicine. Thus, even though our hosts did not say so, "combined" care appears to reflect the appropriate use of available economic resources: Chinese medicines, 80 percent of which are

[1] This pattern of "combined practice" in a Western medical framework in which indigenous Chinese therapies are used pragmatically is one of many treatment modalities, though it requires a special theory and terminology. We commonly found this practice among the barefoot doctors we interviewed (see chapter 7). But in several production brigade health stations, we met barefoot doctors who were identified to us as traditional Chinese medicine barefoot doctors. One such person was introduced to us at the Seven Star Production Brigade in the suburbs of Guilin. He had studied with a Chinese-style doctor before becoming a barefoot doctor and had become skilled in using complex herbal compounds and acupuncture. He appeared to be viewed by both his fellow barefoot doctors and members of the brigade as a specialist who was called on when his particular therapeutic knowledge and skills were desired. We never learned whether or not he also gave Western treatment. It is difficult to know what significance to attach to this division of labor among barefoot doctors. Our overall impression was that this was a minor variant of the dominant prototype of "combined" general practice.

grown in this province, are more available, less expensive, and, not surprisingly, more frequently used.[2]

This hospital's orthopedic and internal medicine wards disclosed more about the different orientations in Chinese medical practice mentioned above. Both wards used herbal remedies much more frequently than acupuncture, even for disorders that were treated by acupuncture at the traditional medicine hospital we visited in Beijing.

In contrast to the attempts at "integration" of ideas and methods in the traditional Chinese hospitals we visited, the Western medical institutions seemed to segregate traditional Chinese medicine into special sections labeled "Chinese medicine" or "combined practice" clinics. That is, while Western medical personnel told us that traditional and Western medicine should be integrated, and while Chinese herbs were used by some of them, the only examples we saw of combined use of concepts and terms were in these special clinics (e.g., the Chinese medicine clinic of the Taoyuan County People's Hospital in Hunan).

Recent Developments

In the past, Chinese medicines (*zhongyao*) have been compounds of several ingredients, mostly herbal. Besides these prescribed medications, there were local herbs (*caoyao*), usually sold and prepared individually. The former were recorded in the classical pharmacopeia and were prescribed by Chinese-style physicians. The latter were part of local oral traditions and were what itinerant herbalists and peasants generally used. *Zhongyao* traditionally contained ingredients grown especially in Sichuan, Yunnan, and Hunan Provinces. Indeed, even today, it has been estimated that 80 percent of Chinese medicines in Taiwan come from these provinces via Hong Kong. But in China, there seems to be a blurring of this distinction as well as a tendency to rely as much as possible on local herbal medicines. For example, in Heng County, Guangxi, we

[2]Most of the production brigades and communes we visited had put aside land to grow local medicinal herbs. Some also possessed small factories for making herbs into powders, pills, and solutions. We saw injectable herbal solutions being prepared at Dazhai and elsewhere. We specifically asked whether public health officials supervised these production processes to ensure sterility, but it was unclear how such regulation was handled. Since traditional Chinese medicines were not given by injection in the past, it is uncertain how this modern technological development was introduced and what is its rationale. But a clear danger would seem to be the introduction into patients of foreign bodies or even potentially infectious materials. Our hosts recognized these potential iatrogenic effects, but could not explain how they were averted. It would be valuable if future visitors could obtain more information on the therapeutic justification, effects, and toxicities of injectable traditional medicines.

were told that 3,000 mu (200 hectares) were devoted to growing local medicinal herbs, which were either used in their crude state or made into powders, pills, plasters, and injectable solutions. More than 30 different herbal medicines were prepared. These medicines, we were further informed, accounted for most of the Chinese medicines administered in the county. Use of Chinese medicines imported from outside Heng County was said to be limited. This represents a major change in the practice of traditional Chinese medicine.[3]

Another aspect of traditional Chinese medical practice that seems to have changed is the autonomy of patients. In the Chinese medicine clinic of the Taoxu Commune Hospital in Heng County we were informed by the staff that patients often specify what treatment they prefer, e.g., herbs, acupuncture, cupping, Western medicine, and that is what they usually receive. Similarly, patients themselves often decide which clinics in the hospital to visit and whether they wish to change clinics. This pattern, which was reported to us at other hospitals as well, goes counter to the traditional Chinese doctor-patient relationship in China prior to 1949 or in present-day Taiwan, which follows a Confucian master-disciple paradigm in which treatment is doctor-centered and patients are expected to be passive and compliant. But in spite of what we were told, many of the Chinese-style patient-doctor interactions we observed comported with the traditional model, the patients acting deferentially and doctors authoritatively. Most of the verbal interchanges were one-sided, with doctors telling patients what was wrong and what the treatment would be. Nonetheless, to our eyes, Chinese-style doctors were less authoritarian in their professional behavior than their counterparts in Hong Kong and Taiwan, and patients seemed more accustomed to speaking up. This is just the kind of unsubstantiated impression that needs to be investigated systematically if we are to compare Chinese medical practice in contemporary China with China before 1949 and other current-day overseas Chinese communities. Intriguingly, at three places[4] Western-style physicians told us that the doctor—not the family or patient—was most responsible for the patient's total care. This is similar to the attitude of Western-style doctors in the United States and Taiwan, but directly counter to lay and Chinese medical practitioners' views in Taiwan [3]. Hence this aspect of Western-style doctors' professional behavior seems to cross cultural and political borders and apparently has not been completely affected by China's revolutionary egalitarianism and the attacks on physicians' "professionalism" during the Cultural Revolution.

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[3]Our group saw little of the widely publicized use of acupuncture for surgical anesthesia; therefore we have not covered this subject. Nor, for completeness' sake, have we attempted to cover other subjects, such as the composition and action of herbal medicines, to which our group devoted only limited attention. These are discussed in detail in the reports of other scientific delegations that have visited China.

[4]The internal medicine clinics at Taoyuan County, the Xinhui County People's Hospital, and the department of psychiatry, #3 Teaching Hospital, Beijing Medical School.

On several occasions we observed the use of combined treatment approaches by Chinese-style physicians with Western medical training. Some, for example, used traditional herbal medicines together with prednisone in three patients with chronic arthritis, nephritis, and hepatitis. Although we were assured that these remedies had been empirically demonstrated to be effective when used together, there did not seem to be a body of knowledge based on actual outcome studies of patients treated with both Chinese and Western medicine. This is another important area for future investigation, one that would seem appropriate for collaboration with medical researchers from the West. We hope that future exchanges with the People's Republic will lead to such studies. Research is surely needed to substantiate claims like those at the Heng County Hospital that 640 cases of "acute abdomen" were cured without surgery, using combined Western and Chinese medicines.

Patient Preference

Patients who go to Chinese medicine clinics at county and commune hospitals told us they do so for a variety of reasons: (1) Chinese medicine is more effective than Western medicine for their problems, which usually are chronic or characterized as "Chinese disorders" (e.g., a 21-year-old female at Heng County Hospital who complained of malaise and weakness caused by "exposure to wind"); (2) Chinese-style physicians are better diagnosticians for the kinds of conditions they suspect they have; (3) they wish to obtain treatment with acupuncture, cupping, or some other traditional Chinese therapy; (4) they regularly try Chinese medicine first for a not very serious disorder, then if it does not work switch to Western medicine, which is believed to be stronger.

We did not hear patients ascribe fewer side effects to Chinese medicine, compared to Western drugs. This belief is widely held in Taiwan, Hong Kong, and among Chinese in the United States. This finding could either reflect our limited sample of informants and the superficiality of our interviews with them or it could represent a noteworthy difference. Again, only systematic research will be able to establish or discredit this impression.

To illustrate some of these points we present several cases seen in the outpatient clinic at the Xinhui County Hospital of Chinese Traditional Medicine in Guangdong. One was a 35-year-old female with chronic arthritis, who told us that she had consulted Western-style doctors and had taken many Western medicines with no effect. She had taken Chinese medicine on the advice of friends and had come to this hospital because it was locally renowned for a special Chinese herbal medicine used for treating arthritis. In the same clinic a 70-year-old woman with chronic bronchitis reported that Chinese medicine was more effective than Western medicine in treating chronic disorders. In the combined Chinese medicine-Western medicine clinic at the Xinhui County

People's Hospital, a 73-year-old man with hypertension was referred from the hospital's internal medicine clinic because he wished to take Chinese medicine. The Chinese-style doctor (who also had trained in Western medicine) treated him with both Western and Chinese medicines—the former for hypertension, the latter for "kidney deficiency" (*shen-kui*). Because both patient and doctor regarded this disorder as "cold," they agreed the patient should eat "hot" foods to restore the balance of his body's constituents. The Western-style doctors accompanying us concurred with the combined treatment but were unable to follow the Chinese medical theory outlined by the doctor in charge of the clinic. The only classical medical concept the patients appeared to be concerned with was the "hot/cold" distinction. The Chinese-style doctors we interviewed told us their patients usually understood Western medical terms better than Chinese medical terms.

Empirical Use of Traditional Medicine

In the main, traditional Chinese treatments are used empirically. For example, public health officials in Heng County encourage families to boil vinegar inside their houses to prevent colds because they claim this has been found to have some practical efficacy. They recommend it as a public health intervention in the same way sanitary measures and control of drinking water are prescribed as part of communitywide campaigns on infectious diseases. Similarly, in addition to isolation of patients and proper disposal of feces, herbal medicine and traditional tonics are administered to the healthy population for prevention of dysentery. Herbal drugs are used along with Western drugs in the treatment of psychiatric disorders because of the known tranquilizer effects of both. The development of herbal anesthesia, like acupuncture anesthesia, was based on observed empirical findings. Although little attention is paid to illness beliefs and symbolic healing practices of the Guangxi minorities except to discourage them, local medicinal herbs are systematically collected and their therapeutic effects analyzed.

All of this is a far cry from the sanctioned use of Chinese medicine in the past. The traditional Chinese pharmacopeia rationalized the properties and therapeutic indications of Chinese medicine within the closed system of traditional Chinese medical beliefs. Even if many remedies were discovered by observing their empirical effects, their later use was made meaningful in terms of classical medical theory. When applied by a Chinese-style physician, they were used on the basis of theoretical notions such as their *yin/yang*, "hot/cold," wet/dry, clean/poisonous characteristics, their putative influence on the balanced flow of *qi* (vital energy) in the body (for instance, to lower *huoqi da*—excessive internal hot energy), their symbolic correspondence according to "five element" (*wuxing*) theory, etc.

Nowadays, as we have suggested, this theoretical framework seems to be taken less seriously in China. Not only are empirical effects emphasized, but these effects are studied within the framework of biomedical science. It is our general impression the theory is employed because it is needed in the practical prescribing of herbs, which unlike acupuncture points, are not of themselves immediately available for clinical experimentation. Instead they are known by the traditional *cheng* (manifestation types) or diagnostic labels with which they are associated in the ancient texts.

We routinely observed Western medical ideas guiding the empirical use of Chinese medicines, and we saw traditional Chinese medical concepts translated into Western medical idiom. But we never encountered Western medical treatments used within the context of Chinese medical theory. What we did see at the Xinhui County Hospital of Chinese Traditional Medicine in Guangdong was the use of Chinese medical terms, not in their traditional sense, but as transliterations of Western medical beliefs. Hence "liver fire" and "kidney fire" were explained to us as "inflammation" (a Western notion) of these organs. The logic employed in these instances was Western, inasmuch as traditional Chinese medical theory does not contain a structural language of organ-specific lesions, but rather a functional language that describes the harmonious relationship of internal and external functional systems. Because we were a Western medical group, perhaps what we heard was an attempt to render Chinese medicine understandable to Western medical ears and not the way it is actually practiced in modern China. If this is so, it is interesting, nonetheless, because these translations are what barefoot doctors, laity, and Western-style physicians are taught. Hence this syncretism is becoming, it would seem, the functioning Chinese medicine of contemporary China.

When we asked the deputy director of the hospital if this impression seemed correct to him, he said it could be true. But he also assured us the change we were observing was for the better. "What is important is effective treatment. Even in the past, the ideas changed. But now we have the opportunity to understand what we do scientifically and to use what is most effective from both systems, and discard what has no effect."

His pragmatism impressed us as much as did his obvious conviction that Chinese medicine was an effective therapeutic system. He was inquisitive about new therapies that might help his patients, and he wished to inform us about the successes of his therapeutic armamentarium. He projected an image of competence and extensive clinical experience, as well as warmth and empathy. His practical orientation and confidence in his effectiveness and personal strengths impressed us as possibly universal attributes of successful clinicians anywhere.

These attributes doubtless also contribute to the placebo response, but they hold further significance for us. They suggest that if we are to understand how indigenous Chinese medicine actually functions in contemporary China and

assess its achievements and limitations (and what therapeutic system does not possess toxicities along with potentially effective treatments), then we must conduct detailed studies of such practitioners systematically describing how they practice and precisely determining the impact of those practices on patients. Until we possess reliable and valid in-depth findings, we must remain suspicious of any account that claims to tell us about traditional medicine in modern China. This is all the more reason to convince our Chinese colleagues to sanction comparative research on the inner workings of Western and Chinese medical practice so that we can better understand universal and culture-specific features of clinical care in the hope of delivering better care to patients in our two societies.

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9

Traditional Medicine

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Integration of Traditional and Western Medicine[1]

Although traditional Chinese medical practitioners were held in low repute and ridiculed prior to the 1949 revolution, Mao Zedong popularized and sanctioned traditional medicine by hailing it as a great resource. Our visit to the Academy of Chinese Traditional Medicine in Beijing underscored the rich historical roots of Chinese medicine as well as the respect and admiration that Chinese traditional doctors now enjoy. We saw the actual merger and integration of Western and traditional Chinese medicine from the level of the barefoot doctors in rural villages to the most highly specialized, most sophisticated institutions at the provincial prefecture and ministerial levels.

Traditional Chinese practices are becoming part of the practice of Western or modern doctors. Graduate physicians have enrolled in traditional medical schools. In some hospitals we visited, up to one-third of the modern physicians had both the M.D. and the traditional Chinese doctor's degree. Moreover, some traditional Chinese doctors have gone to medical school and have received M.D. degrees. In addition to these dual degree efforts, integration of modern and traditional medicine has been enhanced by short courses, apprenticeships, and continuing education provided by mobile medical teams. Barefoot doctors rely greatly on the use of herbs, acupuncture, and other traditional medicine practices. We were told that most barefoot doctors had mastered about 100 different acupuncture points. In medical schools, traditional Chinese medicine has been incorporated into the modern medicine curriculum, while selected areas of modern (Western) medicine have been included in the curriculum of the Chinese traditional medical schools.

[1] The first two sections of this chapter were contributed by Dr. Deuschle.

Education and Training

According to the spokesman at the Academy of Chinese Traditional Medicine, the first traditional medical school in China was founded in 700 A.D. This school taught acupuncture and moxibustion. The first traditional medical schools founded in the new China were located in Beijing, Guangzhou, and Shanghai. There are now 10.

In Changsha we visited the Hunan Provincial College of Chinese Traditional Medicine, which could be described as a hospital-based medical college. It was established in 1963 with 300 beds and now has a staff of 370. The hospital is organized along conventional departmental lines: internal medicine, pediatrics, surgery, obstetrics-gynecology, EENT, and smaller subsidiary departments.

The 300 beds are distributed by specialty as follows:

Internal medicine and pediatrics	150
Surgery	50
Traumatology	50
Ob/Gyn	25
EENT	25

The director of the hospital spelled out their three main tasks: providing medical care; educating and training interns; and conducting scientific research.

There are now national medical entrance examinations and standards for admission to Chinese traditional medical schools. Those passing the examination are eligible for selection to the 5-year program: 4 years of course work and 1 year of internship. The internship training program provides clinical rotation through the various hospital services in a pattern similar to Western medicine. At the time of our visit, the Hunan Provincial College of Chinese Traditional Medicine had 70 interns under training. The staff includes 102 doctors, of whom 29 are Western-trained and 73 traditional. Unfortunately, we did not have an opportunity to meet with students and faculty involved in the 4-year course work program.

The director of the First Teaching Hospital affiliated with this medical school estimated that about 70 percent of their practice involves traditional medicine. They claim a high rate of success with orthopedic problems, especially in treating fractures with small mobile splints. Common diseases treated there include coronary artery disease, respiratory diseases, rheumatic heart disease, chronic nephritis, and hepatitis. Clinical practices used in traditional Chinese medicine are briefly described below.

Clinical Practice[2]

Balance is an important concept in Chinese medicine. Nature maintains a balance in all things. Human beings are seen as a microcosm within a macrocosm, and their energy interrelates with the energy of the universe. Both *qi* (energy) and *jing* (sexual energy) are vital life energies kept in balance by the dual polarities of *yin* and *yang*. *Yin* is described as negative, dark, cold, and feminine, and *yang* is positive, light, warm, and masculine. Whatever the terminology, there must be a balance of positive and negative polarities. The delicate balance of *yin* and *yang* results in health; imbalance or disturbance of this energy may result in disease. The techniques and practices of traditional medicine are based on this (admittedly) oversimplified framework and are attempts to affect the balance of energies.

Acupuncture. Acupunture treats disease by puncturing certain "points" of the human body with metal needles to induce stimulation by various manipulation methods. A point is a specific spot on the body surface where needling or moxibustion is applied to evoke a certain reaction in certain regions or viscera so as to produce therapeutic effects. Acupuncture needles are of various shapes and forms, the most commonly used being filiform, three-edged, "plum blossom," electro, and intradermal needles. The sensation produced may be numbness, distention, or heaviness. The electrical and plum blossom needles are examples of improved technology and represent relatively recent innovations in traditional medicine. Acupuncture anesthesia, which was introduced in 1958, has received widespread attention from the international scientific community.

Moxibustion. Moxibustion is the treatment of disease through thermal stimulation by applying the heat produced by ignited moxa wood over specific areas of skin surface. Moxa wood is the shredded dried leaves of Chinese wormwood (*Artemesis vulgaris*), an herb with an aroma similar to marijuana. Moxa is wound into pellets that are burned over the acupuncture points and removed when the patient feels heat. Moxa now comes in cigar form; it is burned and held over a particular acupoint for certain conditions to bring about the sedation or tonification of energy: either to take away some energy or to give more energy, as the case requires. Heat application by moxibustion is considered by its practitioners to be more deeply penetrating than are the infrared treatments used in Western medicine. The herb must be 9 years old. Its potency is lessened if it is younger or older.

Though acupuncture and moxibustion are different techniques, both are applied to points selected on the basis of the Chinese theory of channels and collaterals, which maintains that all points are capable of both reflecting functional changes of the viscera on the body surface and passing sensations from

[2]This section was contributed by Dr. Elmore.

the body surface to the viscera. From ancient times, they have often been used in coordination. It has been stated that "moxibusiton may be applied when and where acupuncture alone proves ineffective," giving the rationale for the long-term juxtaposition.

Acupressure, acumassage, and cupping. Acupressure and acumassage, as their names imply, are techniques related to acupuncture. Both use acupoints in the body and the meridians in which energy flows to direct the practitioner to the appropriate place to apply pressure or massage.

Cupping is another traditional healing procedure. A heated bamboo cup is placed on the skin. As it cools, it contracts, drawing the skin and the energy into the cup. Applied friction or pinching of vital spots in the body to release congestion is a modified form of cupping.

Herbology. Mao Zedong's statement that Chinese herbs are a treasure house that should be utilized was frequently quoted to us. The use of herbs is widespread in traditional Chinese medicine. Herbology is the use of natural plant or animal substances to boost the body's natural energy and health when nutrition and other preventive methods have failed. Herbalists' areas of specialization include conditions such as skin disease, blood disorders, and internal medicine problems—particularly in relation to the gastrointestinal tract. Infectious diseases generally fall within their area of competence. Chinese herbal medicine, unlike Western medicine, is usually taken in the form of broth made by boiling the ingredients prescribed by the herb specialist.

10

Training and Education of Nurses

Joyce A. Elmore

During the Cultural Revolution, most formal nursing schools in China were disbanded, as was the Chinese Nurses' Association. During that period professional associations were viewed as elitist. As a result, there was a decline in educational programs and standards.

The Nurses' Association was reestablished near the end of 1977. During our visit, we were told that an annual meeting of the group would take place in Beijing in December 1978. The clinical sessions at this meeting were to focus on nursing of cardiovascular diseases. Two representatives of each province would be selected by their peers to attend. In Guangzhou we were told that the Chinese Medical Association published a *Nursing Care Journal* three or four times a year. However, we were not able to locate copies at the library of the Zhongshan Medical College, and therefore it was not possible to prepare a review of articles written by Chinese nurses.

Formal nursing education is provided in China at the provincial, district, and county levels, but not at the commune or brigade level.

A Provincial Nursing School

The nursing school at the Provincial Hospital of the Guangxi Zhuang Autonomous Region was founded in 1972. The school has two classes, with a total enrollment of 100 students, and nine special occupational teachers. Many of the faculty members have been head nurses for a long time; some are also graduates of the medical college. All the teachers of the basic nursing courses are medical graduates. Doctors also teach. All the students come from Guangxi.

Before being considered for admission, applicants must have graduated from middle school and must pass a standardized test. Only 50 students are selected each year. Those who fail may repeat the examination for admission to the following class. Before graduation, students must serve 36 practice weeks in the hospital and pass examinations in basic nursing care, internal medicine, and surgery. Comprehensive examinations are given at the end of each course and

at the end of the entire program. There are no licensure requirements for nurses. Table 1 summarizes the curriculum at this nursing school.

The chief nurse at the hospital planned to institute required examinations for nurses who had been on the staff for a long time: one for those who had been employed more than 10 years, the other for recent graduates. The nursing faculty is also responsible for clinical practice in the hospital. Any nurse who does not pass the examination is counseled and assigned to clinical areas in which she needs practice.

Before the Cultural Revolution it took 3 years to complete the nursing school curriculum, but during that period, some programs were shortened to 2 years and others were abolished altogether. At the time of our visit schools were returning to a 3-year curriculum, which allows more time for clinical practice. The few continuing education courses for nurses usually focus on clinical knowledge. Faculty members of this school have been enrolled in 19 post-graduate courses in this hospital in the past 2 years.

The director graduated from nursing school in 1948. Ten years later she took a postgraduate course. She has also spent nearly 6½ years in part-time study of medicine and clinical nursing. Five years ago she was appointed to her present position.

Assisting the director are a seven-nurse faculty, who also serve as head nurses in the various hospital departments. The curriculum coordinator, who teaches the pharmacology course, prepared herself by studying pharmacology in the medical college for 1 year. She graduated from a 3-year nursing school in 1959 and has since completed a 1-year continuing education course in internal medicine and nursing care.

The remaining faculty are head nurses in the stomatology, EENT, general surgery, pediatric, obstetrics-gynecology, and external medicine departments. All the faculty members have taken continuing education courses in various fields. One of them had joined the army at the age of 15.

General Observations

Nurses who will be assigned administrative duties usually are sent to a larger hospital to learn management skills. In some hospitals two group leaders are in charge of nurses and nursing services. The group leaders report to the hospital administrator. On clinical matters pertaining to patient care, nurses report to the doctor in charge of that ward and to the department head, as well as to the department of medical administration.

Every hospital has a director of nursing, who supervises all the chief nurses; every clinical department has a chief nurse. In the absence of the chief nurse, her assistant, a charge nurse, serves as head. The leading nurse member of one hospital was the associate director of the hospital; in another, one of the nurses was the leading member of the revolutionary committee.

TABLE 1. Teaching Schedule of the Guangxi Zhuang Autonomous Region Nursing School

Course	Hours per Course: Lab, Practice, Lecture	Discussion	Total	Weeks per Course: First Term 1st Sem (19 wks)	2d Sem (20 wks)	Second Term 3d Sem (17 wks)	3d Sem (4 wks)	4th Sem (8 wks)	Internship Third Term 5th Sem (36 wks)		Semester In Which Exam Is Given: Written	Practical
General courses												
Politics	110	109	219						Internal medicine	9	3	1, 2, 4
Exercise	100	46	146						Surgery	8		1, 2, 3, 4, 5
Medical chemistry	40	10	50	8					Pediatrics	4		1
Total hours	250	165	415						OB-GYN	4	1	
Basics									(2 wks in labor & delivery)		1	
Human anatomy	80	20	100	8					Contagious diseases	2		1
Human physiology	92	26	118	8					EENT & stomatology	4		1, 2
Microbiology and parasitology	40	17	57	6					Emergency room	2	2	3
Pharmacology	90	22	112	2	6				Minor surgery	2	2	1
Pathology	34	16	50	6					Supply room	1	3	2
Total hours	336	101	437								3	2
Clinical											4	
Basic nursing	110	110	220		8	6					4	
Fundamental traditional Chinese medicine	100	48	148	6	6							
Internal medicine and nursing care	120	90	210		6	6					4	
Surgery and nursing care	120	80	200		6	6						
Pediatrics and nursing care	52	24	76			6		4				4
OB-GYN and nursing care	60	32	92			6		8				4
EENT, stomatology and nursing care	60	30	90					6				4
Hygiene	36	14	50					6				
Total hours	658	428	1,086									
Grand total	1,244	694	1,938									

uninterrupted intensive clinical teaching and practice

Total effort				
Semester	1	2	3	4
Hours per week	28	28	30	28
Courses per semester	7	9	9	6
Examinations	7	5	2	4
Practical evaluations	2	2	2	2

Graduate examination, required subjects
Basic nursing care
Internal medicine and nursing care
Surgery and nursing care

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We met one male nurse during our entire visit. Nursing is not viewed as man's work in the Chinese culture. It seemed to be considered a misuse of manpower for a robust, healthy man to do nursing. The few male nurses are not restricted from any nursing care activities, but tend to work in outpatient departments and operating rooms.

We reviewed record forms in one hospital. They were similar to those used in hospitals in this country: doctor's orders, TPR, history and physical examination, discharge summary, laboratory tests, medication cards, and 8-hour summary sheets (appendix D).

During the day shift from 7:30 a.m. to 3:00 p.m., a typical 3-nurse team starts the day by making the patients' beds. Then one takes charge of treatments, one manages medical orders, and one makes rounds to check on patients' conditions, respond to their requests, and monitor intravenous administrations and blood transfusions. These activities are usually completed by noon, when a report is written about each patient. The chief nurse incorporates these notes into her 8-hour summary, which later becomes part of the 24-hour summary. The reports include conditions of seriously ill patients, those on intravenous fluids or medications, and pre- and postoperative patients. Special treatments are described. All instruments on the ward are accounted for.

There are usually three levels of nursing care: level 1, for critically ill patients who are entirely dependent and may be conscious or unconscious; level 2, for patients who require intermediate care, but are able to do some things for themselves; and level 3, for ambulatory patients who can bathe themselves, make their own beds, and otherwise care for themselves except for certain treatments, medications, or diagnostic tests. The doctor's orders usually indicate the level of care required by each patient.

At one hospital we visited, many of the nurses were older and much more experienced in many ways than the beginning doctors. Since doctors and nurses dress alike and perform many of the same functions, it was often difficult for us to distinguish between them.

Microstudy

A list of 20 questions was developed to establish rapport with the nurses and learn about their life style, education, family, and socioeconomic status. Our general interests were nursing education, training, service, and continuing education. Since interview time was limited to a few minutes with each nurse, it was not always possible to get all the questions answered. Twenty-nine interviews were conducted, most of them in Guangxi.

The education of the nurses varied from 6 months to 3 years, partly because of the suppression of education during the Cultural Revolution. The nurses had graduated between 1951 and 1976 and reflected a wide range of age and

experience. Table 2 gives the name of the school, the length of the program, year of graduation, and postgraduate or continuing education (CE) courses completed since graduation for each nurse interviewed.

Seventeen of the nurses were married, and two were single. Data were not collected on the marital status of the others. Table 3 compares the salaries and positions of the married nurses with those of their husbands. The married couples had from two to four children. Nurses with more than two children said that the third (and fourth) had been before the campaign to limit each couple to two children or had resulted from failures in family planning.

Summary

Nursing services in the hopsitals we visited were similar to those in the United States. Routines, procedures, and hospital record forms were quite familiar. In general, the hospital technology is not at the level of that in the United States, but all citizens have access to the health care delivery system at minimum cost. We were impressed with the smooth functioning of doctors and nurses as a team.

TABLE 2. Training of Individual Nurses

Nurse	School of Nursing	Length of Program (yrs)	Year of Graduation	Postgraduate or CE Courses	Length
1	Guilin	2	1954	Operating room theater and acupuncture (1967)	6 months
				Improving technical nursing skills (1974)	6 months
2	Shanghai Occupational	3	1962	None	
3	Guilin	3	1975	Changzhen Medical College – doctor's training	3 years
4	Nanning	3	1962	Clinical practice (1962–63)	1 year
				Postgraduate course (1974)	6 months
5	Nanning	3	1962	Clinical practice (1962–63)	1 year
6	Nanning	2	1972	None	

TABLE 2. (continued)

Nurse	School of Nursing	Length of Program (yrs)	Year of Graduation	Postgraduate or CE Courses	Length
7	Teh Special District Hospital		1961	None	
8	Teh Special District Hospital		1961	Traditional Chinese medicine theory (1964)	
9	Fuzhou Middle Level Vocational Medical School, Jiangsu	3	1962	None	
10	Teh Special District Hospital	1 + 1	1951 1963	Additional clinical experience	1 year
11	Hunan Provincial	3	1963	None	
12	Ling Ling District	3	1953	None	
13	Lei Lin Medical College	3	1959	None	
14	Lei Lin Medical College	3	1961	None	
15	Lei Lin Medical College, traditional Chinese medicine school	2	1974	Bone disease course: orthopedic ward, operating room theater (1961)	1 year
16	Hubei	1	1948	Postgraduate course (1958)	
				Part-time study in medicine and clinical nursing	6½ years
17	Fuzhou	3	1959	CE course in internal medicine	1 year
18	Nanning	2	1955	Shanghai Nursing School cardiac surgery course (1963, 1973)	
				Part-time study (1977)	
19	Liaoning	2½	1951	Part-time study in hospital pharmacy	
20	Fuzhou	2	1952	None	

TABLE 2. (continued)

Nurse	School of Nursing	Length of Program (yrs)	Year of Graduation	Postgraduate or CE Courses	Length
21	Nanning	2	1954	19 courses during past 2 years for new knowledge and updating	
22	Fuzhou	2	1955	Yes (no explanation)	
23	Fuzhou	3	1954	Age 15: Revolutionary Army	
				Work and study at tuberculosis hospital	
24	Xin Hei Hygiene School	½	1976	None	
25	Xi'an	3	1972	None	
26	Guangzhou	3	1975	None	
27	Shaanxi Province	2	1974	None	
28	Shaanxi Province	3	1968	None	
29	Chang'an County	2	1974	None	

TABLE 3. Monthly Salaries and Positions of Nurses and Their Husbands

Husband		Wife	
Occupation	Salary (yuan)	Occupation	Salary (yuan)
Leading member of machine tool factory; cadre	68 ($41)	Chief nurse, Chuanchuan Central Hospital	...
Medical industry planner; cadre; physician	90 ($54)	Nurse/doctor, Chuanchuan Central Hospital	65 ($39)
Chief, internal medicine department; physician	70+ ($42)	Head nurse, Guangxi Medical College	50+ ($30)
Hospital pharmacist	70+ ($42)	Charge nurse, County Hospital	50+ ($30)
Member, revolutionary committee	...	Associate director, Heng County Hospital	50 ($30)
Cadre, vegetable cannery	56 ($34)	Charge nurse, Heng County Hospital	42 ($25)
Teacher	...	Charge nurse, Heng County Hospital	...
Inland water navigation shipping company	47 ($28)	Staff nurse, Heng County Hospital	42 ($25)

TABLE 3. (continued)

Husband		Wife	
Occupation	Salary (yuan)	Occupation	Salary (yuan)
Teacher, high middle school	58 ($35)	Staff nurse, Heng County Hospital	46.5 ($28)
Scientific and Technical Bureau, Guangxi Zhuang A.R.	...	Director, Guangxi Zhuang Nursing School	...
In charge of Weather Bureau	...	Curriculum coordinator, Guangxi Zhuang Nursing School	...
Bureau of Health, Guangxi Zhuang A.R.	...	Head nurse, stomatology department	...
Surgeon	...	Head nurse, EENT department	...
Health Bureau, anti-schistosomiasis anti-epidemic station	...	Head nurse, general surgery department	...
Institute of Pharmacy	...	Head nurse, pediatric department	...
Bank of China	...	Head nurse, OB-GYN department	...
Cultural Bureau, Guangxi Zhuang A.R.	...	Head nurse	...

11

Training and Education of Doctors

Kurt W. Deuschle

Formal Education

Medical education in China has expanded rapidly since 1949. There are now 100 medical colleges in China [1] and, according to information presented by the Bureau of Medical Education and Medical Sciences of the Ministry of Health, 310,000 physicians have been graduated over the past 28 years.

Officials at the Bureau of Medical Education stated that most medical schools now have a full 5-year curriculum that includes training in seven major specialties: medical therapeutics, hygiene, stomatology, pediatrics, Chinese medicine, clinical pharmacology, and pharmacology. In June 1978 there were two other categories of medical schools of higher learning: Chinese medicine and pharmacy, with a 4-year curriculum; and a vocational program with a 3-year curriculum. Even though graduates of the 3-year curriculum have less scientific training, they have "M.D." status. Specialization training for the 3-year doctors is emphasized. Graduates of 3-, 4-, and 5-year curriculums enjoy the same appointment privileges at hospitals and have the same responsibilities for health service. During the 1960's the 6-year medical school curriculum was reduced to 3 years in an effort to rapidly expand the number of physicians. Experience with the 3- and 6-year curriculums indicated that 3 years was not enough and 6 years was too much. Although the 3-year program accelerated the graduation of doctors, the 5-year program has been recently established as a more reasonable time for the medical school curriculum, and the 3-year program has been abolished.

Students selected for medical schools of higher learning come from a pool of senior middle school graduates. Those given priority for admission are considered on a number of criteria, including scholarly competence; moral, intellectual, and political excellence; and performance on an admission examination. At the time of our visit, in addition to studying medical subjects, Chinese medical students spent about 30 percent of their time learning political science (history of socialism in China since the revolution) and performing

military drills and physical labor. This is no longer true. During their education in medical school they must also learn nursing skills and techniques, first aid, and mass health education.

After graduation, physicians are assigned to various positions in the health care system. The preferences of the graduates are considered. Postgraduate training for specialization is 3 years. Candidates selected from the health institutions are enrolled in specialization tracks under the supervision of medical experts in the specialized fields.

Continuing Education

Continuing education in medicine has very high priority. There is a vertical line of responsibility in which the highest level of specialization provides training and courses for the next lower level. For example, an expert in cardiovascular disease at the provincial hospital level might spend a year sharing expertise at a county hospital. In turn, a physician from a county hospital would share any new or upgraded skills and knowledge with doctors in the commune hospitals. The commune hospital doctors would subsequently be able to share their learning with the barefoot doctors at the production brigade health station.

Other forms of continuing education include short and long courses in advanced concepts, techniques, and procedures in medicine at all levels of health care from commune hospitals to the ministry level. Correspondence courses are also popular.

Mobile Medical Teams

The mobile medical team concept is a key component in the constant effort to increase the competence of health workers in the Chinese health care system. The mobile medical team does more than visit rural areas to take modern knowledge and expertise to the barefoot doctors. Experts are also assigned for periods of several months to a year as part of a continuing education effort. Medical facilities are used by the mobile teams that are frequently assigned to rural posts for 1 of each 3 years of their medical service.

The term "mobile medical teams" may lead one to assume that the activity is a short-term assignment for a specific medical task. Such assignments for the mobile medical teams in the countryside are usually for 1 year, but may range from 6 months to 2 years. Some 160,000 urban physicians were permanently assigned to the countryside in a 7-year period (1966-73). This unprecedented exodus resulted in long waiting lines at the urban medical facilities from which these health service personnel were drawn. Estimates of urban hospital professional personnel assigned to medical posts in the countryside varied from 15 to

25 percent. However, no formal data were available at any of the urban hospitals we visited, nor could we obtain the information indirectly by noting the composition of urban-assigned personnel at the rural health facilities we visited.

Zhongshan Medical College

During our 3-week trip we visited one medical school: the Zhongshan Medical College in Guangzhou, founded in 1953. The curriculum there has undergone many changes, especially since the Cultural Revolution. The medical school complex has five teaching hospitals—three general and two specialty—with a total of 2,100 beds. The staff of 4,000 includes 1,000 teachers and doctors. Enrollment in the medical school is 2,000 with 200 students in a 1-year advanced graduate program.

The curriculum requires 5 years, having gone through 6- and 3-year trials. Selection of candidates for admission to the medical school is said to be, first and foremost, determined by "good political attitudes," followed by "love of physical labor, study of the revolution," good health, age (20 years or so), single marital status, and good performance as a factory or agricultural worker. Candidates are selected from the pool of senior middle school graduates to take a unified (national) examination, and admission is recommended on the basis of test performance.

In general the curriculum can be divided into three stages: premedical, preclinical, and clinical. The premedical courses, given during the 1st year, include biology, chemistry, physics, mathematics, and a foreign language. The 2d- and 3d-year courses cover the standard basic medical sciences. The 4th and 5th years provide clinical training and practice experience. Changes in textbooks and teaching content have been initiated in response to comments from students and teachers.

It was not possible to review the entire curriculum. In response to a question on preventive medicine and public health teaching, the director stated that 90 hours were devoted to hygiene and epidemiology. There are formal courses in epidemiology and statistics as well as hygiene. The Faculty of Hygiene offers six courses for students graduating with this emphasis: epidemiology, environmental statistics, foodstuff sanitation and nutrition, statistics (biostatistics), and hygiene and sanitation for children and adolescents.

A major effort has been launched to develop unified standard textbooks for all medical students so as to consolidate the basic core teaching. Three principles are emphasized: to combine traditional and Western medicine; to give priority to prevention as well as therapeutics; and to combine theory with practice.

We asked about internship and residency programs at Zhongshan. According to the director, the 5th year of medical school is equivalent to an internship.

There is a 1-year postgraduate program to upgrade the skills of doctors who come back after practice in the field and a specialty residency program of 3 years for doctors under 40 wishing to specialize. Many short courses and correspondence courses are also provided for health personnel requiring advanced training.

Zhongshan Medical School enrolls minority students from China and some foreign students. At the time of our visit there were 25 students from 13 countries, most of them African. China has many minority ethnic groups that do not compete as well academically for admission to medical school, and special efforts are made to obtain a representative proportion of minority medical students. They receive remedial work if required and get special consideration so that physicians from these groups are available to practice medicine in their home communities. Women constitute about 40 percent of the medical school graduates. Only 10 percent of the medical students were formerly barefoot doctors. All students must pass a final exam to receive a certificate in medical science. Most of the graduates are assigned to practice in factories and mines.

Some special features of the Chinese medical education system are worth noting. In the selection process there is peer ranking of the factory or agricultural student group; a potential medical student must be chosen at first screening by fellow workers. The student must also qualify academically through graduation from senior middle school and must pass a national examination. Students may repeat the examination several times if necessary. Being allowed to repeat the examination is apparently linked to the applicant's age. Successful candidates may indicate their first, second, and third choices of medical school. Prospective students may also request a specialty area from three faculties: general medicine, dentistry (stomatology), or public health. Their desires are considered seriously, but the final decision is made by the authorities, based on the State's priorities.

Faculty are chosen on the basis of qualifications and competence. The faculty at Zhongshan includes graduate doctors from their own medical college as well as from other medical colleges. The lowest faculty rank is acting assistant, with no fixed period, followed by lecturer, assistant professor, and full professor. Faculty are appointed initially at junior levels and progress according to their competence in basic science and clinical teaching. We were told that no faculty had been promoted at Zhongshan since 1966. Students participate constructively in efforts to improve faculty teaching, course content, and teaching methods.

The only concrete budget figure on medical education given to the delegation was the 10,000 yuan ($6,000) yearly cost for each medical student. While medical education is "free" to the medical student, the State assumes the overall cost, and the 10,000 yuan figure merely reflects the amount budgeted per student. This figure was not broken down for us.

The overall attrition rate from admission until graduation is 2-3 percent. The reason for dropout or failure is usually given as poor health or poor learning. Medical students are discouraged from marrying.

Although very little was said about research, clinical rather than basic science research was briefly outlined. Family planning research with oral contraceptive pills, and exploration of family planning through a combination of Chinese traditional and Western medicine were specific examples of ongoing investigative studies by the faculty, with support from the State.

Zhongshan Medical College has one of the outstanding specialty cancer hospitals in China. Patients are referred through a regionalized chain, going from commune hospital, to county hospital, to provincial hospital, to prefecture hospital, to this university center hospital.

Assistant Doctors

In addition to training full M.D.'s, China has been training assistant or middle-level doctors, selected from the junior middle school (equivalent to our junior high school level). These students are admitted to a so-called middle medical school, which is a vocational type training program. Training is usually for 3 years, and the level of proficiency and expertise varies considerably. According to Sidel [4], there were 230 middle-level schools in China in 1965 and an estimated 172,000 assistant doctors in 1966. These middle-level doctors might be equivalent to Soviet feldshers. Unfortunately, we did not have an opportunity to visit a middle-level school or to obtain any detailed briefing on this category of medical manpower.

In summary, the physician in China graduates from a medical school of higher learning. There are 100 such medical colleges. Although we had an opportunity to visit only one medical campus, the information gathered from our half-day visit provided important and useful data on modern medical education in China. A sample of one of 100 medical colleges gives only a "candid camera" shot of one point in this vast network, so one must refrain from generalizing about Chinese medical education. However, our observations and the information we obtained there agree with other reports gathered by U.S. delegations who have reported on more extensive visits to the Chinese medical schools in many sections of the country [1,2,3].

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12

Surveillance and Antiepidemic Work

William Foege

Introduction and Organization

Antiepidemic stations are expected to carry out prevention, research, and training. The scope of services was not consistent throughout the provinces we visited. In general, antiepidemic responsibilities include communicable disease control, special programs for vaccine-preventable diseases, occupational safety and health programs, projects for the control of vector-borne diseases, and environmental sanitation programs. In some areas (i.e., Guilin), screening for tuberculosis and leprosy is part of the antiepidemic services. In other areas, it is included in chronic disease services. In some areas (i.e., Guangdong), occupational safety and health does not come under antiepidemic services. The recent dramatic increase in life expectancy and improvement in child health has been attributed largely to antiepidemic services. We were interested in their organization and programs.

At the provincial level, antiepidemic services may involve a staff of 200 or more. An example of the organization at this level is found in the Guangxi Zhuang Autonomous Region, where 212 persons staff a department of epidemiology, a department of hygiene, and an institute of parasitology. Their principal responsibilities are as follows:

- Department of epidemiology
  Epidemiology surveys and analysis of epidemiologic and seasonal patterns;
  Control of communicable diseases;
  Technical supervision;
  Preventive and occupational programs.
- Department of hygiene
  Survey of labor hygiene in factories and mines;
  Supervision of criteria for labor hygiene;
  Enforcement of labor protection regulations;

Inspection of factories;
Programs for environmental sanitation and hygiene in urban and rural areas;
Survey of pollution and foodstuffs;
Examination of school hygiene.

- Institute of parasitology
  Surveys of schistosomiasis, malaria, filariasis, and hookworm;
  Prevention, diagnosis, and treatment of parasitological conditions;
  Consultation on parasitology;
  Eradication of the four pests.

Another type of organization is seen at the Shaanxi provincial antiepidemic station, where 204 persons staff departments of hygiene, labor hygiene, endemic diseases, and parasitic diseases.

At the county level, 3-10 persons are generally employed in each antiepidemic station. However, Miyun County had a staff of 32. County antiepidemic services may be housed with other medical services, but functions and responsibilities are kept separate. At the commune level, one to three persons are responsible for antiepidemic work carried out as part of the services of the commune hospital; and at the brigade level, the barefoot doctors of the cooperative medical station have this responsibility.

In addition to the above structure, there may be antiepidemic prefecture stations between the provincial and county levels. We were told there are 15 of these in Guangdong Province, each with a staff of approximately 50.

Two distinct chains of command are evident in the antiepidemic service. General administrative supervision is provided under the usual county, commune, or brigade structure. Professional supervision, on the other hand, is clearly the responsibility of the antiepidemic services. A barefoot doctor ultimately receives professional supervision and guidance from the provincial antiepidemic service, while administrative supervision comes from the brigade.

Medical students in Zhongshan Medical School are given 90 hours of instruction in hygiene, including statistics, and 75 hours of instruction in epidemiology, as compared with 160 hours of training in pediatrics. (The epidemiology lecture topics are listed in the appendix to this chapter.)

There are no special schools for those wishing to specialize in antiepidemic or public health areas, but several educational possibilities are available. One approach is to attend medical school for 4 years with 1 year devoted to public health, followed by a 6-month internship. Another is to graduate from a school of medicine, then take a 1-year postgraduate course in public health at the medical school. A medical college graduate can also apply for a special 3-year postgraduate course in public health.

Medical Surveillance

In the past 25 years medical surveillance has developed rapidly on a global basis. It is now considered to be the foundation for successful disease control programs and occupational health and safety efforts, as well as the basis for systematic epidemiologic studies. We were interested in the type of surveillance programs instituted in rural China, particularly in how data are collected, analyzed, and used. The following information concerns data on acute infectious diseases as well as environmental and occupational hygiene.

Data Collection

System. In urban areas health statistics are collected by the health care divisions in each hospital. A doctor is given responsibility for collecting data from one or two health stations. Information on acute disease problems is turned over to the antiepidemic program. The health care division provides information to the hospital's statistics section, from which it is sent to the Ministry of Health.

Volunteers in rural areas report disease conditions to the cooperative health station in their brigade. Each brigade in turn reports to the commune hospital antiepidemic station. We were not able to discern a uniform reporting pattern for the entire country; we were told that in some brigades the barefoot doctor is expected to send a monthly report to the commune hospital. There, the antiepidemic station summarizes information to be sent to the county antiepidemic station. Provincial antiepidemic stations receive reports from the county and in turn are responsible for reporting to the Ministry of Health. If a patient goes directly to a county hospital without being referred from a commune hospital, the county hospital reports the illness back to the commune level.

While different reporting frequencies are apparently expected in different provinces, in no case did we detect a specific negative reporting system, that is, one that requires zero cases of a particular illness to be reported.

Reporting forms. While negative reporting as such was not emphasized, most areas required a specific form to be used for reportable diseases. A standard national form is not used. Samples of some of the reporting forms in use are found in appendix E. Case reports and summaries of each disease are compiled by geographic unit.

Information collected. Standardization for the entire country apparently does not exist, but common reportable conditions include diphtheria, measles, polio, pertussis, meningitis, hepatitis, influenza, dysentery, tuberculosis, malaria, rabies, Japanese B encephalitis, leprosy, scarlet fever, typhoid, and relapsing fever.

At each provincial, county, commune, and brigade health center we tried to ascertain the leading causes of infectious disease illness and death as reported by the surveillance system. The major reported infectious diseases were influenza, dysentery, measles, and hepatitis. In selected areas, epidemic hemorrhagic fever, Japanese B encephalitis, malaria, and typhoid fever were listed as major causes of infectious disease illness. Major causes of death from infectious diseases included Japanese B encephalitis, epidemic hemorrhagic fever, poliomyelitis, and in one specific area, rabies.

An example of the information available to us comes from Chang'an County in Shaanxi Province, which has 43 communes and 700,000 people. In 1977, 4,598 infectious disease cases were reported. The most frequent was dysentery, with 2,398 cases. Second was measles, with 889 cases, or 129 cases per 100,000 population (26 per 100,000 in the United States in 1977). Third was epidemic encephalitis, with 264 cases. Infectious disease deaths were uncommon, with eight deaths due to epidemic encephalitis, seven to poliomyelitis, and one to Japanese B encephalitis.

As could be expected, wide variance was found in the adequacy of information collected. Some counties and provinces kept extensive information, while others had little data. Variations were apparent even for such basic information as the number of immunizations given. In Guangdong, for instance, we were told that of 107 counties, 47 kept good immunization records, including numerators and denominators, while 41 kept fairly good records, and 19 had poor records.

Analysis

Data are analyzed at every level, a recommended practice. Most health units, from the brigade health system through the provincial antiepidemic station, could provide numerators and denominators as well as rates for most reportable diseases. We did not see more extensive analysis; age-adjusted rates, age-specific rates, evaluation of immunization status, and significance testing information were not readily available.

Response

While there was a functional system to convey information from lower to higher levels, we did not encounter a standardized surveillance reporting system that returned information and analysis to lower levels.

Outbreak investigation capabilities seemed well developed. For instance, suspected cases of polio appeared to be adequately and quickly investigated. In some cases the response was very systematic. In Hunan we were told that not

only are reports of dysentery sent from the brigade to the commune but a standardized reaction has been developed. If only one or two cases are reported from the brigade, the barefoot doctor is expected to investigate and respond appropriately. If three or more cases are reported, however, the commune automatically sends an antiepidemic team to the brigade. If the number mounts to some unspecified level or the commune requests help, the county also responds.

In Guangdong we were told that provincial antiepidemic teams launch investigations whenever (1) the Ministry of Health requests, (2) problems are detected by their own data analysis, or (3) problems are detected by reports from the county or commune. For instance, because of 200 cases of meningitis reported by one county in the summer of 1977, the provincial antiepidemic station initiated an investigation and diagnosed the epidemic as due to Japanese B encephalitis. Their investigation was self-generated, initiated by their expectation that meningitis should be a rare condition in summer. Personnel in the antiepidemic station at the provincial levels are expected to spend about one-half their time in the countryside in investigations or on consultations.

In principle, a medical surveillance system in rural areas provides information from every brigade, eventually reaching the Ministry of Health. There is no national standardization; therefore there are different forms, different reportable conditions, and various periodicities. Improvements in the data collection system could be achieved through national standardization of forms and information requested.

Data are analyzed at all levels, making a response possible at each level. Coordination of reporting through antiepidemic stations, chronic disease centers, and maternal-child health centers could improve the understanding of disease problems faced.

Results of the Antiepidemic Program

Smallpox

Smallpox, which was endemic in China in the 1940's, was markedly reduced by the mid-1950's; the last outbreak was reported in March 1960 in Yunnan Province. The method of smallpox eradication varied. In October 1950 a nationwide program was launched through the health structure to vaccinate all newborns and to revaccinate children at 6-year intervals, but some provinces used other systems. For example, in one province teachers and cadres vaccinated every village each year after 1949. We were told that in early years in this province the regular health structure was bypassed and the vaccinators were unpaid volunteers. In the early 1950's they used liquid vaccine, which was kept cool in brooks or wells. Freeze-dried vaccine is now used. Vaccinators

were taught to read vaccination takes and told to repeat any vaccinations that did not take.

Several lines of reasoning lead us to conclude that China no longer has smallpox. (1) China's medical and social structure, unlike that of most countries, provides a mechanism for vaccinating every person. Therefore, it is not only theoretically possible but has been demonstrated in other campaigns that every person can be reached by a program. (2) In most health units we saw that the date of the last case of smallpox could be ascertained, and that the information was consistent with data from other sources. (3) Vaccination scar rates are very high; reports of 95 percent and more in the childhood population are consistent with both program reports and our observations. (4) The reporting system from brigade to commune to county and province is sufficiently good for other communicable diseases that it would be unlikely that smallpox cases could have been missed for 20 years, if indeed they had occurred. Unlike many countries, no sizable proportion of the population is inaccessible to China's surveillance system. (5) The absence of pockmarks in children has been repeatedly reported by observers, which is consistent with over 18 years of smallpox freedom. (6) There is now discussion in China that smallpox vaccination procedures can be changed, the first step being to vaccinate only newborns and persons living along border areas, and the final step, to abolish smallpox vaccinations in general. Chinese public health officials would hardly consider such steps if they were not thoroughly convinced that smallpox has disappeared.

Other Vaccine Programs

As with some other programs, we found little national uniformity and a great deal of provincial diversity in programs for vaccine-preventable diseases. Even within a single province, we found wide variations: for example, in Shaanxi we were told that 80 percent of brigades carried out planned immunizations, while 20 percent did not follow the provincial schedule. Types of vaccine used varied, as did the time of administration. In general, BCG, measles, polio, triple vaccine, and smallpox vaccinations were almost universal. Smallpox vaccine is now given by 1 year of age and repeated at approximately 6 years of age. BCG vaccination was frequently given at birth and repeated if the skin test at age 3, 7, or 11 proved negative. Appendix F illustrates some of the immunization forms used.

Measles (live, further attenuated Peking 55) was given at about 1 year of age, but in practice (in brigades where it was given only once a year) children at least 8 months of age were vaccinated with a repeat dose at about 4 years of age. We were told the vaccine contained $10^{2.5}$ tissue culture infective doses per 0.1 ml and that the average dose of vaccine was 0.2 ml. Measles vaccine is

frequently given in the spring. Brigade officials inform the commune how many doses of measles vaccine are needed. The commune in turn orders vaccine from the county. It is delivered from the county through the commune to the barefoot doctor in the brigade in 2-cc ampules, in a thermos with ice.

Live polio vaccine is universally given: first, type 1, followed by a combination of types 2 and 3, 1½ to 2 months later. Polio vaccine is given at ages 1, 2, 3, and 7. As with measles vaccine, polio vaccine is given on a particular day, with orders placed in advance, usually during the winter to avoid interference from other enteroviruses. In general, we were told that vaccines were given on a specific day, and held beyond that time only for children who had been sick or away from the brigade on immunization day. On one brigade medical cooperative wall, we saw a sign interpreting regulation 3, which indicated more flexibility in the vaccination schedule. The sign directed staff to finish immunizations within the following times: measles 3 days; polio 5 days; and others within 7 days.

Other immunizations administered routinely in some counties and provinces include Japanese B encephalitis, leptospirosis, typhoid, cholera, rabies, and tetanus vaccines. Diphtheria, pertussis, and tetanus vaccines are used, not always in the same combination. In some counties, DTP is used, but other areas use only DT vaccine or pertussis toxoid. In at least one place a DP vaccine is used without the tetanus component.

When requested, the barefoot doctors could retrieve an immunization card for each child. Immunization levels of 95 percent and over were common, and we were told that barefoot doctors would actually take immunizations to individual houses if the children there had not come to be vaccinated for some reason.

Tuberculosis. It is difficult to evaluate the role of BCG in the reduction of tuberculosis because screening and treatment occur simultaneously. For instance, in 1973 a mass X-ray survey in Dazhai Commune (11,000 population) revealed 53 cases of tuberculosis. Although there are the same problems with compliance in taking medications that have been observed in the United States, in that brigade all previously diagnosed cases of tuberculosis are under treatment or have completed treatment, and there are no currently active cases. In Luancun Commune (population 17,340) only 10 cases are under therapy, with no new cases reported in 1977. Among 18,600 persons screened in a Guilin suburb in 1976, 130 cases of tuberculosis were found. We were told that many brigades have had no recent cases of tuberculosis in persons under the age of 15. While this appears likely, it is impossible to evaluate the role of BCG in the achievement.

Measles. As in the United States, measles may provide one of the most sensitive indicators of the adequacy of an immunization program. Only 1 or 2 years of reduced effort will permit a resurgence of measles. Even adequate coverage rates, if associated with impotent vaccine, will be quickly reflected in

increased incidence of disease. In China a wide spectrum of measles incidence was found consistent with excellent programs in some areas and defects in others (table 1). In general, it appears that defects may be due to cold chain problems and administration of impotent vaccine rather than to incomplete coverage. It is most impressive that some brigades and counties have remained measles-free for 3 to 5 years.

Poliomyelitis. We saw wide variations in the incidence of poliomyelitis (table 2). Some counties have gone years without a case of polio. For example,

TABLE 1. Measles Incidence Rates, Selected Areas of the People's Republic of China, 1977

Area	Population	Cases	Rate/ 100,000 Population
Guilin suburb commune	18,600	0	0
Taoyuan County (2 brigades), Hunan	2,259	0	0
Henanzhai Commune, Miyun County	21,000	0	0
Heng County, Guangxi Zhuang A.R.	780,000	...	3.8
Miyun County, Beijing Municipality	380,000	...	4
Dazhai Commune	11,600	3	26
Guangxi Zhuang A.R.	30,000,000	...	38
Macongling Commune	21,636	24	111
Chang'an County, Shaanxi	700,000	889	127
Xinhui County, Guangdong	800,000	...	137
Luancun Commune, Chang'an County	17,340	100+	576+

U.S. measles rate in 1977 = 26.1 per 100,000, with State rates ranging from 1.2 to 150.5 per 100,000 population.

TABLE 2. Polio Incidence Rates, Selected Areas of the People's Republic of China, 1977

Area	Population	Cases	Rate/ 100,000 Population
Guilin suburb commune	18,600	0	0
Heng County, Guangxi Zhuang A.R.	780,000	0	0
Taoyuan County, Hunan	880,000	0	0
Hunan Province	48,000,000	20	0.04
Guangxi Zhuang A.R.	30,000,000	...	0.05
Chang'an County, Shaanxi	700,000	50	7.1
Luancun Commune, Chang'an County	17,340	9	51.9

Taoyuan County, with a population of 880,000 has been polio-free for 3 years. On the other hand, Chang'an County, with a population of 700,000, recorded 50 cases of polio in 1977, with 7 deaths. Nine of the patients had previously received polio vaccine, but their recent immunization records were not available. Hunan Province, with a population of 48 million, recorded 20 cases of polio in 1977. Nonetheless, as with measles, the incidence must be viewed in relative terms and is far below that of 20 years ago. In Guangxi, for instance, the incidence of polio between 1969 and 1971 was 2.73 cases per 100,000 population. In 1975 and 1976 it was 0.13 per 100,000, and in 1977 had dropped to 0.05 per 100,000. In this province approximately three-fourths of the polio patients are unimmunized. The remaining one-fourth have a history of immunization, but their recent immunization experience was not available.

Pertussis. The reduction in pertussis is exemplified in Heng County. In 1953, the incidence of pertussis was recorded as 674 per 100,000 persons; in 1977, it was 34 per 100,000. Rates as high as 130 per 100,000 were found in Xinhui County and as low as 11 per 100,000 in Miyun County.

Diphtheria. Rates for diphtheria were difficult to obtain. However, for Guangxi we were told there were 2.8 cases per 100,000 in 1977, while in Heng County the diphtheria rate had dropped from 13.5 to 0.2 per 100,000 between 1953 and 1977.

In summary, the campaign against vaccine-preventable diseases in China has been an outstanding success, with marked reductions in disease rates over the past 15-20 years. However, as in the United States, there are wide discrepancies. National figures were not available in China, and we were left with the impression that in general vaccine-preventable disease rates have a wide range consistent with the variety of approaches to immunization programs.

Other Selected Communicable Diseases

Influenza, pneumonia, dysentery, and measles were the most commonly mentioned causes of infectious disease morbidity. In selected areas other diseases were added to the list: malaria in Hunan, pertussis in Guangxi, and typhoid fever in Xinhui County.

We requested infectious disease mortality data at each medical center. In children, measles mortality—either primary or secondary to pneumonia—was most frequently mentioned. In several areas deaths due to Japanese B encephalitis were included in the three leading causes of infectious disease mortality (Chang'an County; Taoyuan County; Guangxi; Guangdong). Epidemic hemorrhagic fever was the leading cause of infectious disease deaths in Hunan, while rabies, hepatitis, leptospirosis, dysentery, and meningococcal meningitis were included in specific areas.

Influenza. Influenza was cited as a major problem in most places visited. Both H3N2 and H1N1 were reported in 1977 and early 1978. Influenza rates of 300 per 100,000 in 1977 were cited for Xinhui County.

Hepatitis. Hepatitis was frequently reported as a major communicable disease problem. The Beijing Children's Hospital reported one-fourth of their cases as positive for Australian antigen. Miyun County reported .2 cases of hepatitis per 100,000, with 4.2 deaths per 100,000 in 1977. Luancun Commune reported 60 cases in 1977, 346 per 100,000. (The U.S. rate for all reported hepatitis in 1977 was 16 cases per 100,000.)

Epidemic hemorrhagic fever. Epidemic hemorrhagic fever was mentioned in various places but appeared to be of particular significance in Hunan. Health authorities there listed it as the major cause of death due to infectious diseases. Cases appear to be sporadic, concentrated in both May and November, with a mortality rate of 3-4 percent. Young people doing manual labor are its most frequent victims. It is not clear whether the disease is increasing, but some authorities thought it had been a special problem for the last 10 years.

Japanese B encephalitis. Japanese B encephalitis was cited as a particular problem, and immunizations for this disease were given in both Shaanxi and Hunan. In Guangxi an incidence of 2.7 per 100,000 was reported in 1977, down from 24.5 in 1969. In Heng County the 1977 incidence was 0.7 per 100,000, and in Xinhui County the reported incidence was 0.5.

Schistosomiasis. One remarkable improvement has been the decrease in schistosomiasis. While its existence is acknowledged by health authorities in various provinces, there is no question that large areas have become free of schistosomiasis, and there has been a dramatic decrease in areas that still harbor it.

Meningitis. Meningococcal meningitis was reported as sporadic in various provinces. In Miyun County near Beijing it was said to have resulted in 14.7 cases and 3.2 deaths per 100,000 population in 1977. Group A strains are said to predominate.

Parasitic Diseases

As could be expected, parasitic disease rates appeared to increase in southern China as compared to the north. Since uniform information is not available from all provinces, examples must suffice. Screening for intestinal parasites in one Guilin suburban commune in 1977 showed that 14.6 percent of the population had *Ascaris.* Occasional cases of hookworm or whipworm appeared. Hookworm is also present in Hunan and Guangdong and in 10-20 percent of some populations surveyed in Guangxi. Filariasis was reported in both Guangdong and Guangxi.

Malaria was said to be absent in the northern provinces. In Shaanxi Province, authorities indicated they have about 50 cases of malaria per year per 100,000 population. In Macongling Commune in Shaanxi Province, the incidence of malaria was 100 per 100,000 population per year. In Luancun Commune six cases were reported in 1977 in a population of 17,240. In Guangxi, *Plasmodium vivax, falciparum, ovale*, and *malariae* were all said to be present. The campaign against malaria includes vector control, chemoprophylaxis, and drug therapy. In Heng County 1.5 cases per 100,000 were reported in 1977, a decline from 168 per 100,000 reported in 1953. In Guangdong Province, we were told that malaria at one time affected 50 percent of the population. While the same types of malaria still exist, the incidence is much reduced.

Environmental Sanitation

One objective of the antiepidemic services is the improvement of drinking water. Barefoot doctors place bleaching powder in wells and use a chlorine meter to measure whether the concentration of chlorine is sufficient. Each commune has information on the number of improved wells in the commune and the status of running water. For example, in Henanzhai Commune in Miyun County, 19 of 25 brigades have running water, waste disposal, and 110 public latrines in addition to private latrines. On the other hand, in one commune near Xi'an, only 3 of 18 brigades had running water. The rate for dysentery, which is said to be very common in the summer, ranged from 16 to 800 per 100,000 per year based on reports available to us.

The barefoot doctor is also responsible for health education aimed at eliminating flies, mosquitoes, rats, and bedbugs. While mosquitoes are still abundant in the south and flies are still common in the rural areas, there are fewer flies than one would expect. The rat control program consists of poisoning and trapping rats and destroying rat holes. A rat index shows reductions of 95-99 percent in the rat population.

Occupational Health

Occupational health activities are not yet well developed. In textile factories where noise, dust, and fire were major hazards, a no smoking rule was in effect and being followed. However, the major approach to noise and dust appeared to be personal protective devices issued to workers, but unused. Plant management indicated that when an accident occurs, a meeting is held immediately and an on-the-spot investigation is conducted to determine the cause of the accident and to serve as an object lesson.

APPENDIX

Lectures on Epidemiology at
Zhongshan Medical College, Guangzhou

1. Introduction
2. Basic knowledges of epidemic patterns
3. Epidemiological investigation and analysis
4. Antiepidemic measures
5. Disinfection and pest control
6. Measles
7. Influenza
8. Smallpox
9. Epidemic cerebrospinal meningitis
10. Scarlet fever
11. Whooping cough
12. Diphtheria
13. Typhoid
14. Bacillary dysentery
15. Cholera
16. Viral hepatitis
17. Poliomyelitis
18. Brucellosis
19. Schistosomiasis
20. Hookworm disease
21. Leptospirosis
22. Malaria
23. Filariasis
24. Epidemic encephalitis B
25. Plague
26. Epidemic hemorrhagic fever
27. Endemic diseases
28. Coronary heart diseases
29. Malignant tumors

13

Birth Planning

Pi-chao Chen

Policy

In the summer of 1956 the Chinese Government officially announced a policy aimed at reducing fertility by promotion of late marriage and limitation of family size. This policy was barely translated into action when it was called off with the launching of the Great Leap Forward Campaign in late 1958. Following that ill-fated scheme, the fertility reduction program was revived in 1963.

In the early 1960's, contraceptive service was provided mainly to the urban population; the rural population was left virtually untouched. A few years later, the country was plunged into the Cultural Revolution. Whatever the final verdict on that upheaval, one of its indisputable gains was the creation, phase by phase, of a nationwide network of health care and birth planning services. By 1978 more than 90 percent of the rural villages had set up such services, and China now operates the largest family planning program in the world.

The rationale, thrust, and goal of China's population policy in recent years were succinctly summarized by the Chinese delegation to the 1974 World Population Conference in Bucharest. One member, Mr. Huang, said:

> On the basis of energetically developing production and raising the living standards of the people, China has developed medical and health services throughout the cities and countryside and [has] strengthened the work of maternity and child care, thus reducing mortality, on the one hand, and regulating birth rate through birth planning, on the other. Our birth planning is not merely birth control, as some people understand it to be; it comprises different measures for different circumstances. In densely populated areas, late marriage and birth control are encouraged on the basis of voluntariness, while active treatment is given in case of sterility. In national minority areas and other sparsely populated areas, appropriate measures are taken to facilitate population growth, while birth control advice and help are given to those parents who have too many children and desire birth control. Such a policy of planned population growth is in the interest of the thorough emancipation of women and the proper bringing up of future generations, as well as of national construction and prosperity.

An official pronouncement on China's policy was given by Chairman Hua Kuofeng in his speech to the Fifth National People's Congress in February 1978:

> Planned birth is very important. To control the population growth in a planned manner is in the interest of planned development of national economy, protection of mother and children's health, production of broad masses, and their work and study. It must be grasped seriously and continuously. Strive to reduce the natural increase rate of the population of our country down to 10 per 1,000 within 3 years.

More significantly, Article 53 of the new constitution, adopted by the same congress, contains the following provision: "The State advocates and encourages birth planning." To the best of our knowledge, this is probably the first time in which the State's active intervention on behalf of reduced fertility has been written into the constitution of a nation-state.

Organization

The highest administrative agency in charge of China's population programs is the State Council's Planned Birth Staff Office (or Leading Group), which stands above the various ministries in birth planning. Its responsibilities include:

- Supervising and coordinating the various ministries and agencies (e.g., the ministries of health, pharmaceutical industries, the Communist Youth League, the Women's Federation, the Federation of Trade Unions, etc.) whose activities affect the planned birth programs in one way or another;
- Working out short-term annual and intermediate-term work plans;
- Supervising lower level planned birth units to implement the policy of reduced population growth;
- Monitoring the lower level planned birth program activities;
- Diffusing innovations in planned birth through various means, including the convening of national on-the-spot conferences to exchange experiences.

The Planned Birth Staff Office calls a national planned birth work conference once a year. Lower level units such as the provincial planned birth staff offices send delegates. Through this conference, the National Government transmits policy directives and receives feedback. The latest work conference was in May 1978 in Beijing. Some of the provincial and county level planned birth cadres we interviewed had attended.

Each province has its own planned birth committee, usually presided over by a deputy chairman of the provincial revolutionary committee (the highest

administrative office in the province) or a deputy party secretary of the provincial Communist Party committee. The planned birth committee includes representatives from various agencies and sectors whose activities promote late marriage and birth planning. They come, for example, from trade unions; women's federations; departments of health, education, public security, and commerce; pharmaceutical corporations; and the Communist Youth League. Beneath this committee is the provincial planned birth staff office, which is responsible for day-to-day activities.

The Guangdong provincial planned birth staff office has 15 full-time staff members. This office (1) sets annual and intermediate-term planned birth targets; (2) supervises lower level units to implement policy and realize targets; (3) provides technical guidance and assistance to the lower level units in collaboration with relevant medical units; and (4) conducts IEM (information, education, motivation) activities, including the convening of on-the-spot conferences.

In the last few years, the annual budget of this office has ranged from 8 to 10 million yuan ($4.8 to $6 million), distributed as follows:

- Procurement of contraceptive supplies and reimbursement of the four planned birth operations 50%
- IEM activities, including subsidies to lower level units 30%
- Manpower training and research 20%

The budget does not cover the salary of the 15 full-time workers, or of workers at lower levels. Their salaries are budgeted under the overall personnel payroll of the level of the government for which they work. Part of the fund earmarked for IEM activities subsidizes the salaries of the communes' planned birth cadres, in cases where the communes involved are financially pressed to support the positions.

An official of the Guangdong provincial planned birth staff office said that the county-level planned birth office in Guangdong employs an average of 5 full-time workers, although the larger offices may have more than 10. In Xinhui County, Guangdong, the county planned birth staff office has six full-time workers, and had a budget of 115,000 yuan ($69,000) in 1977; 50,000 yuan was spent well before the end of its fiscal year. The funds were used for these purposes:

- Salary for six full-time workers at the county planned birth office;
- Salary for 26 commune-level planned birth cadres (each of the 21 communes in the county has a planned birth cadre; a few large communes have two. The total salary for the 32 planned birth cadres was 20,000 yuan);
- Procurement of contraceptive supplies, 35,000 yuan;

- Reimbursement for the four planned birth operations;
- The cost of conferences, visits to other units, and IEM activities (e.g., printing of planned birth posters, etc.).

In Changsha, the capital of Hunan Province, the municipal planned birth staff office spent 310,000 yuan ($186,000) in 1977 for the following:

- IEM activities, mostly printing of planned birth posters;
- Purchase of equipment for distribution to lower units;
- Periodic conferences and diffusion of advanced experience through on-the-spot conferences;
- Reimbursement of medical units for the four planned birth operations according to the following rates: induced abortion, 50 yuan ($30); tubal ligation, 2.50 yuan ($1.50); vasectomy, 1.50 yuan (90 cents); insertion or removal of IUD, 0.50 yuan (30 cents).

According to the person who provided the above information, none of the funds were used for contraceptive supplies. The municipal planned birth staff office took delivery of the supplies from the relevant pharmaceutical corporations, which were presumably paid by the provincial planned birth staff office or some other unit.

In Taoyuan County, Hunan, the county planned birth leading group is part of the county revolutionary committee, the county's highest administrative organ, and is headed by a vice chairman of the county revolutionary committee. The county planned birth leading group has 11 members. Set up in 1958, it was subsequently suspended, only to be revived after the Cultural Revolution.

Under the county planned birth leading group is the county planned birth staff office, which is in charge of day-to-day activities. This staff office has five full-time workers: a director, a deputy director, a worker in charge of promoting innovation through convening experience-exchange conferences, a worker in charge of contraceptive supplies, and a worker in charge of statistics and data gathering. According to the deputy director, the Taoyuan planned birth staff office keeps track of "five records": married women of reproductive age, pregnant women, deaths, births, and late marriages.

Three Components of the Planned Birth Programs

The Chinese planned birth programs aim at promoting and achieving widespread acceptance of the socialist reproductive norms:

- *Late marriage*. In cities, men and women are not to get married until they reach, respectively, 28 and 25 full years of age; in rural areas the respective ages are 25 and 23 full years of age. These are promoted as the "optimal ages of marriage." In accordance with the practice of decentralized policy implementation, each area establishes its own local norm. However, this varies only slightly, as summarized in table 1.
- *Birth spacing*. The first child may be planned right after marriage, but the second child should be planned only when the first reaches 3 full years of age.
- *Small family*. Two children per family, regardless of their sex, is the goal. In practice, however, couples whose first two or more children are all female, or couples with two children, one of whom has a congenital disease, are allowed to have more than two children.

In accordance with China's usual practice, these three reproductive norms have been sloganized into *wan hsi shao*--literally "later, longer, and fewer"--that is, get married later, make birth intervals longer, and have fewer children (the "later, longer, fewer" norms).

In the last few years, more areas in China have taken up program performance evaluation, which was first developed in the Chang Jiang Delta to measure progress in achieving popular acceptance of the norms. This evaluation system consists of three input measures and three output measures:

Three input indexes ("the three high"):
- Birth limitation rate
- Late marriage rate
- Planned birth rate

Three output indexes ("the three low"):
- Crude birth rate
- Crude death rate
- Natural increase rate

TABLE 1. Optimal Ages for Marriage

Place	Type	Age for Males (yrs)	Age for Females (yrs)
Heng County, Guangxi Zhuang A.R.	Urban	28	25
	Rural	26	23
Xiaoxincun Brigade, Luancun Commune, Chang'an County, Xi'an, Shaanxi	Rural	25	23
Miyun County, Beijing Municipality	Rural	<25	23
Nanning, Guangxi Zhuang A.R.	Urban	27	24
	Rural	<25	23

The definition of the three output indexes is no different from that elsewhere and therefore requires no explanation. The three input indexes are defined as follows:

$$\text{Birth limitation rate} = \frac{\text{Married women of reproductive age practicing contraception}}{\text{Married women of reproductive age}^2} \times 100$$

$$\text{Late marriage rate} = \frac{\text{Men married at optimal age + Women married at optimal age in a given year}}{\text{Total marriages in given year}} \times 100$$

$$\text{Planned birth rate} = \frac{\text{First-birth-order births to couples conforming to late marriage norm + Second-birth-order births to couples conforming to longer spacing norm}}{\text{Total number of births}} \times 100$$

A second definition of planned birth rate is:

$$\text{Planned birth rate} = \frac{\text{Births to be expected in a plan (or calendar) year if all occur according to "later, longer, fewer" norms}}{\text{Total population at beginning of plan (or calendar) year}} \times 100.$$

As we learned at the Guangdong planned birth staff office, this second definition is used to calculate the lowest possible crude birth rate; it is not used to measure program performance. There is no reason why it cannot be so used, however.

These six indexes measure the performance of planned birth programs across geographic-administrative units (e.g., counties, communes, production brigades in the countryside; district, residents' committee in the cities); and in a given unit over a period of time. The higher the value of the three input indexes and the lower the value of the three output indexes, the better the program's performance.

In Changsha, Hunan, where we first learned of this evaluation system, the input indexes are referred to as "the three high," and the output indexes as "the three low." Spatially, "the three high" and "the three low" are used as yardsticks to compare and evaluate the performance of the programs among geographic-administrative units. Temporally, they measure the performance of a geographic-administrative unit's program over the years. Each unit is expected to raise the value of input indexes and lower the value of output indexes until its natural increase rate is reduced to 10 per 1,000 or below. The goal is to "stabilize" the natural increase rate at that level.

Not all the units we visited have adopted this system. Some were even unable to provide the value for the planned birth rate. For instance Miyun County, near Beijing, and Heng County, Guangxi, did not record the planned birth rate; whereas in Xinhui, Guangdong, and Taoyuan, Hunan, the planned birth cadres were able to provide the figure. In Chang'an County, Shaanxi Province, we did not obtain the figure for the planned birth rate because we did not meet any cadre from the county planned birth staff office. (This also explains the scarcity of data about that county in table 2.)

TABLE 2. Planned Birth and Vital Statistics of Three Rural Counties, One Suburban County, One Provincial Capital, and One Province, PRC, 1977*

County Province	Xinhui Guangdong	Heng Guangxi	Taoyuan Hunan	Chang'an Shaanxi	Miyun Beijing	Xi'an Shaanxi	Guangdong
Population	830,000	780,000	889,845	1,431,315	380,000	2,633,805[a]	55,019,000
Married women of reproductive age (MWRA)	90,849	87,667	107,000			384,680	
MWRA as percent of population (%)	10.9	11.2	12			14.6	
MWRA practicing contraception	71,751	61,633	85,814			315,515	4,208,954
Birth limitation rate (%)	78.9	70	80.2	80.6			76.5
IUD	29,681 (41%)	53,886 (87%)	33,862 (40%)			124,139 (39%)	60%
Tubal ligation	23,075 (32%)	2,199 (4%)	33,833 (39%)			42,444 (14%)	20%
Vasectomy	14,157 (20%)	252 (1%)	11,062 (13%)			5,875 (2%)	10%
Oral pills		3,036 (5%)	5,735 (7%)			66,023 (22%)	5%[b]
Injectable		131 (1%)					
Condom	4,838 (7%)	2,129 (4%)				74,676 (24%)	5%[c]
Other			1,315 (2%)				
Induced abortions	3,700		3,800				250–300 thousand[d]
Late marriage rate (%)							
Total		98				94.4	75
Male	95.3						
Female	96.4						
Planned birth rate (%)	62		70			67	61
Crude birth rate	15.5	20.2	15.3	19.93	10.79	15.88	18.58
Crude death rate	6.45	5.7	9.08	6.78	6.04	5.87	5.97
Natural increase rate	9.5	14.5	6.22	13.15	4.75	10.01	12.61

*Xinhui, Heng, and Taoyuan are rural counties; Chang'an and Miyun are suburban counties; Xi'an is the capital of Shaanxi.

[a]Of these, 1,420,315 are in Zhangan County under the jurisdiction of Xi'an.

[b]Includes injectable.

[c]Includes diaphragm and jelly.

[d]Average figure for 5-year period up to 1977.

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In Changsha and in Hunan Province, the "three high and three low" evaluation system is used to exhort better performance in planned birth work. Each "bar" is encouraged to further raise the value of the three input indexes, and each "block" is responsible for supervising all the "bars" within it to further raise the value of the three input indexes as well as lower the value of the three output indexes.

The "bars" are all the branch-type agencies or enterprises within a given geographic-administrative unit, e.g., the factories, trading corporations, government agencies, within a district in a city. The "block" refers to a geographic-administrative unit, e.g., a municipality, a county, a commune, etc. Each "bar" is evaluated in terms of its performance with respect to raising the input indexes, and each "block" is evaluated in terms of its accomplishment in lowering the output indexes.

Community Birth Planning

Below the county level, China's planned birth organization is unique in several respects. First, all planned birth workers are local persons. Outsiders assigned to an area must live in the community where they work. Second, at every level there is a unit responsible for planned birth work and in every unit there is at least one person responsible for planned birth work. Finally, IEM activities, as well as contraceptive services, are community-based, and local people are in charge of promoting the three reproductive norms.

Each commune has its own planned birth committee (or leading group) with representation from various relevant units. A deputy party secretary or deputy chairman of the commune management committee usually presides. This committee supervises the commune planned birth cadres. It also stands ready to render whatever support is needed.

The commune planned birth cadres handle day-to-day coordination and supervise the planned birth activities of the production brigades within the commune. Each production brigade has its own planned birth leading group headed by either the captain of the brigade or the captain of the women's team (or head of the brigade chapter of the women's federation). The group supervises barefoot doctors, birth attendants, and team-level health aides who deliver contraceptives to the household or accompany clients to the commune health center to obtain the type of planned birth operation they demand. It also uses locally available audiovisual devices (e.g., film strips, movies, posters, broadcasting) for IEM activities. More significantly, it avails itself of the regular production team meetings to conduct IEM activities among eligible couples.

Since the early 1970's the Chinese programs have made great efforts to promote community planning of births. By 1977 the following model had been adopted by all the units we visited, with the partial exception of Heng County in Guangxi.

Soon after the lunar new year, the local planned birth leading group calls a meeting of 10-20 eligible couples in a production team to work out the community birth plan for the next calendar year. Eligible couples allocate quotas or "turns" among themselves in accordance with their usual practice of "self-proposal and peer review." Each couple submits its own birth plan (i.e., when to have the first or second child). The meeting then approves or modifies this proposal in accordance with the "later, longer, fewer" reproductive norms. If the aggregate total of births proposed does not add up to an excessive birth rate, individual birth plans are approved by the meeting. If the proposed births yield a crude birth rate higher than that "recommended from above," the quotas are allocated to couples in the "highest priority" categories: (1) newly married couples who have conformed to the late marriage norm; (2) married but childless couples; (3) married couples with one child age 3 or above. Among couples in the third category, a couple whose child is older has priority over another couple whose child is younger. Couples with daughters and no sons and couples with one son who has a congenital disease are also allocated "turns" over the two-child (regardless of sex) family. Couples who are allocated birth quotas by their peers abstain from practicing contraception. Those who do not receive a quota are expected to practice contraception and to resort to induced abortion if contraception fails.

Having thus worked out the team (or neighborhood) plan of birth, the production team submits the plan to the brigade. The brigade summarizes the plans submitted by all the teams under it and submits its plan to the commune. The planned birth cadres we interviewed said that because of variations in demographic characteristics from place to place it is not feasible to ask all teams and brigades to present a community plan that will yield a crude birth rate within the limit recommended from above. The commune is the lowest feasible unit where a community plan of births can be worked out. The commune can conform to the guideline from above while accommodating variations in demographic characteristics that are inevitable among the various brigades and teams.

The county in turn aggregates the birth plans submitted by its communes. As long as the overall crude birth rate does not exceed the ceiling set by the prefecture, the county approves the plans. Otherwise, consultations with commune officials will ensue until a final plan emerges that both satisfies the "demand from above" and accommodates any genuine difficulties among lower units. To make things easier for the lower level, the county planned birth staff office adopts a ceiling that is well above the aggregate of the figures submitted by the communes. For instance, according to the deputy director of the Taoyuan County planned birth staff office, the 1977 county plan called for 12,000 births. This exceeded by 2,000 the aggregate of "planned births" submitted by the communes. As it turned out, the actual number of births in 1977 was 13,586, which exceeded the county planned births by 1,586. In other

words, the actual number of births was 36 percent higher than it would have been, had every birth in the county occurred according to the "later, longer, and fewer" norms.

Failures to conceive, contraceptive failures, and other unexpected exigencies are inevitable—a husband may be away for a long time or a child may die—and adjustments may have to be made within the plan period. Eligible couples meet to make the adjustment. They may reassign to another couple a birth quota or "turn" originally given to a couple who has either failed to conceive or will not give birth until the next plan year. If another couple not originally assigned a quota nevertheless has conceived because of contraceptive failure, its "turn" will automatically go the next year to a couple "owed" a turn.

The same procedure has been used in the city to allocate birth quotas as a way of reducing and stabilizing fertility. Eligible couples in a neighborhood of 10 to 15 households, a "residents group," meet to work out their community birth plan. They follow the same practice of "self-proposal and peer review" and are guided by the same three reproductive norms. The residents group submits its plan of births to the next higher level, the "residents committee," which, after having made adjustments and aggregated its total, in turn submits its plan to the next higher level, the ward (*jiedao*). The ward makes its own adjustment and submits its total to the district, which again adjusts it and submits the final total to the municipal planned birth staff office.

The adjustment made by this office has a somewhat different meaning. Here it means that at each level the planned birth leading group revises the plans of births submitted by the lower level units, giving additional quotas to one unit and subtracting quotas from other units. In doing this, it is still guided by the three reproductive norms, but takes into consideration the peculiar demographic characteristics of each unit (e.g., number of married women of reproductive age, number of children in the family, age and sex of the first child, etc.). In making this adjustment, the planned birth leading group has to consult the lower level units. This vertical consultation is referred to as "integration of the lower with the higher" (*shang-xia jiehe*).

In some areas, community planning of births has become so institutionalized and the three reproductive norms so well understood by couples that it is no longer necessary to call group meetings to work out the community plan. Each couple draws up its own plan, guided by the norms, and submits it to the local planned birth leading group. On the basis of these individual plans, the group works out both an annual and a multiyear community birth plan. In some areas where this model has been followed for years, a 5-year community birth plan has been worked out. Changsha is one such example.

According to a staff member at the Changsha municipal planned birth staff office, the annual plan of births has to be worked out 9 months before the plan year begins. By March 30, 1978, her office completed the Changsha municipal plan of births for 1979. In drawing up the plan, the office has to take into

account the number of marriages in the same year. According to her, most marriages nowadays take place around the lunar new year, May 1 (International Labor Day), and October 1 (the National Anniversary). Those who get married around the lunar new year (usually between the last week of January and the first week of February) are assigned a quota for that year. Those who get married on May 1 or October 1 are assigned a quota for the following year. Those who are assigned a quota in one year but fail to have a birth are automatically entitled to a quota next year.

Summing up their experience of the last several years, her staff has arrived at a rule of thumb, for which they have coined a slogan: "20/60/20." It means that, of all the couples married in a given calendar year, 20 percent will give birth during the same calendar year, 60 percent the following calendar year, and the remaining 20 percent the year after. The use of this rule of thumb, together with information about the number of couples planning to be married and their marriage date, has greatly simplified drawing up the annual plan. They can now project the annual number of births with greater accuracy and make timely adjustments during the year.

All this suggests that in contemporary China the fundamental reproductive decisions, such as age at marriage, length of birth spacing, and number of children, are no longer made by individual couples but are subject to the review and approval of neighbor, peer, and community. While this is true to a great extent, it does not mean that there are no individuals who refuse to abide by the norms. People still get married before reaching the "optimal age." As table 2 indicates, in Guangdong the late marriage rate for 1977 was 75 percent. This means that 25 percent of the couples who married in that year did so before reaching the "optimal age." In Heng County, 98 percent of the couples married in 1977 conformed to the late marriage norm. The late marriage rate for males and females in Xinhui County was equally impressive: 95 percent for males and 96 percent for females. If this trend continues, it will have a depressing effect on fertility even in the absence of a high birth limitation rate.

Evidence seems to indicate that the trend toward late marriage began years ago and is not just a recent phenomenon. In all the areas we visited, the number of married women of reproductive age as a percent of the total population ranged between 11 percent and 12 percent. Except for Xi'an and Chang'an, at no place we visited did the rate exceed 13 percent (tables 2, 5, 6, 7).

Contrary to the practice in other countries, where the upper cutoff point for reproductive age is 44 or 45, it is 49 full years of age in China. This inflates the numerator and makes the Chinese figures all the more impressive. In South Korea and Taiwan, which have experienced substantial increases in the age at marriage in recent decades, married women between ages 15 and 44 account for 14 percent or more of the total population. This would seem to suggest that the age at marriage for women in China has also been rising substantially

in the last two decades. In the Indian subcontinent married women between these ages constitute 18 percent or more of the total population. Other things being equal, this means that the Indian subcontinent population programs have the task of serving a much larger clientele in relative terms. It also means that it is much more difficult to reduce fertility there than in China, other things being equal.

The best single measure of the extent to which eligible couples conform to the reproductive norms is the planned birth rate. If all the eligible couples conform to the norms, the planned birth rate will be 100 percent. As of 1977, not all the eligible couples had done so. As table 2 indicates, the planned birth rate for Guangdong in 1977 was 61 percent. In Taoyuan County it was 70 percent. The birth total in Taoyuan in 1977 was 13,586, yielding a crude birth rate of 15.3 per 1,000. According to the deputy director of the county planned birth staff office, if all the births in 1977 had occurred in accordance with the three reproductive norms, there would have been 3,800 or so fewer babies, resulting in a crude birth rate of 11 per 1,000. But 30 percent of the births were "outside the plan," accounting for the highest crude birth rate. On the basis of data obtained from complete enumeration and investigation of 9 of 60 communes in the county, the director said that his office has figured it out this way: if the county's planned birth rate can be raised to 90 percent or higher, it will be possible to hold the natural increase rate to 5-6 per 1,000 in the next 10 years or so. This is the most difficult decade because the proportion of married women of reproductive age is expected to rise, thanks to "our failure to pay attention to the matter of birth planning in the 1950's and early 1960's."

Contraceptive Services

By policy, at least one barefoot doctor in each cooperative health station is a female. Most female barefoot doctors have been trained in contraceptive counseling. At least one in each brigade has been trained to insert and remove IUD's. At least one health worker in each commune has been trained in tubal ligation, vasectomy, and terminating pregnancies that are within 3-6 months of gestation. As our Chinese hosts put it, the thrust of the effort has been to realize a condition where "insertion and removal of IUD's do not have to go outside the commune." This goal has been realized in all the areas we visited.

Assisted by the part-time attendant, the female barefoot doctor serving a brigade is responsible for (1) providing prenatal and postpartum counseling; (2) delivering babies; (3) conducting contraceptive education and delivering contraceptive supplies to the homes of eligible couples; (4) referring or accompanying clients expecting complicated births or demanding ob/gyn services—including the four planned birth operations—to the commune health clinics; (5) recording planned birth and vital statistics of the brigade.

All contraceptive supplies and services are government subsidized and free. The planned birth staff office also reimburses health units for performing the four planned birth operations at the rates cited earlier.

Since the early 1970's, the Government has required the following leave schedule for women employed in government agencies and nonagricultural enterprises when they undergo planned birth operations: 14 days for induced abortion; 10 days for tubal ligation; 2-3 days for insertion or removal of IUD; and 63 days for postpartum tubal ligation (56 days are maternity leave). In the countryside, time off is decided locally, but as a rule peasant women are allotted equivalent days or workpoints, which are the basis for determining one's income in rural villages (table 3).

In addition, most industrial enterprises and some rural communes provide a "nutritional subsidy" in kind or cash. In Changsha, where the amount of the subsidy is decided by each enterprise, the average for tubal ligation is 10-15 yuan and many go as high as 20 yuan ($12). For induced abortions the subsidy is 5 yuan. Since the lowest monthly wage in the industrial sector is a mere 40-50 yuan, the nutritional subsidy should be considered very generous, amounting to an incentive or "compensation," a term the Chinese prefer (table 4).

Contraceptive Methods

In theory China makes all kinds of contraceptives except jellies and diaphragms freely available to eligible couples. A close look at table 2, however, leads one to suspect that oral contraceptives are either limited or not made available at all in rural villages. In the areas we visited, the IUD is the single

TABLE 3. Some Statistics on Administrative Subdivisions and Health Personnel of Selected Counties, PRC, 1977

County	Miyun Beijing	Xinhui Guangdong	Taoyuan Hunan	Heng Guangxi
Population	380,000	880,000[a]	889,845	780,000
Communes	23	22	60	20
Production brigades	330	340[b]		237
Production teams		2,200		4,424
Barefoot doctors	1,700	1,250		1,300
Health aides				5,600
Midwives				600

[a]Of which 60,000 are residents of county seat and other market towns engaged in nonagricultural activities; the remaining are peasants belonging to various communes.

[b]Although there are 340 brigades, there are 409 cooperative health stations because some of the larger brigades have set up two stations. On the average every cooperative health station has two-three barefoot doctors, although some of the larger ones have as many as seven-eight.

TABLE 4. Leaves of Absence With Full Pay or Equivalent for Planned Birth Operations (in days)

	Taoyuan	Xiaoxicun Brigade Luancun Commune Xi'an, Shaanxi	Nanning Guangxi
Induced abortion	14	14	14
Tubal ligation	21	7–40	10
Postpartum tubal ligation	30	60	63[a]
IUD insertion	7	7	3
IUD removal	7		2
Nutritional subsidies	5–20 yuan		

[a]Of this, 56 days are maternity leave, to which the industrial worker is entitled. In addition, the employing unit provides nutritional subsidies either in kind or in cash.

most popular method of contraception. Its use ranges from 41 percent in Xinhui to 87 percent in Heng County, and 60 percent in Guangdong. Next in popularity is the tubal ligation, which accounts for 32 percent, 39 percent, and 20 percent in Xinhui, Taoyuan, and Guangdong, respectively. However, this method is extremely unpopular in Heng County, where there are many of the Zhuang minority.

The third most popular method is vasectomy, accounting for 10 percent of all the methods used in Guangdong Province. Oral contraceptives are apparently not available in Xinhui, although, together with injectable contraceptives, they account for 5 percent of all the methods used in Guangdong, where Xinhui is located. In Taoyuan County, pills account for 13 percent of all the methods used. This high rate can be explained by the fact that Taoyuan is an experimental county where they were introduced in the late 1960's or 1970's as part of a provincial effort to evaluate the acceptability and side effects of oral contraceptives in rural areas (tables 2 and 5).

Program officials make induced abortion available, free, and safe to all women who want it, but advise them to use it as a last resort if contraception fails. Selected female barefoot doctors serving in remote brigades induce abortion by vacuum aspiration. However, a woman pregnant more than 3 months must go to the commune health clinic. Despite the official "last resort" caution, the incidence of induced abortion in areas we visited is relatively high, roughly the same as that in the United States in recent years. The abortion rate in Guangdong in 1977 was 244 per 1,000 live births, 285 in Xinhui, and 280 in Taoyuan. The U.S. ratio in 1975 was 273. In the absence of

TABLE 5. Vital and Planned Birth Statistics of Henanzhai Commune, Miyun County, Beijing, 1973–77

Year	1973	1974	1975	1976	1977[c]
Population	20,419	20,058	20,436	20,830	21,517
Married fertile women (MFW) to age 49[a]	2,173	2,099	2,122	2,254	2,301
MFW as percent of total population	10.6	10.5	10.4	10.8	10.7
MFW practicing contraception	1,736	1,686	1,793	1,978	2,010
Vasectomy	22	22	23	22	22
	1%	1%	1%	1%	1%
Tubal ligation	345	350	355	365	369
	20%	21%	20%	19%	18%
IUD	993	979	983	1,003	959
	57%	58%	55%	51%	48%
Oral pills	351	262	307	395	421
	20%	16%	17%	20%	21%
Injectable	0	0	0	22	45
	0	0	0	1%	2%
Others	25	71	125	171	194
	2%	4%	7%	9%	10%
Birth limitation rate[b]	80%	80%	85%	88%	87%
Crude birth rate (per 1,000)	14.6	12.7	11.2	9	

[a]Married fertile women up to age 49 should not be confused with married women of reproductive age. The latter includes both fertile and sterile married women.

[b]The Chinese term given was *biyun ri*, contraception rate, and not the usual *jieyu ri*, birth limitation rate.

[c]The figures in this column are for January through June 1977. The crude birth rate, crude death rate, and natural increase rate for 1977 are 11, 7, and 4 per 1,000 respectively.

legal, free, and easily available induced abortion, the crude birth rates in some areas we visited would have been at least 26 percent higher than they actually were in 1977. Although the contribution of induced abortion to reduced fertility is substantial in places we visited, induced abortion apparently has not played as important a role in reducing fertility as it has in Japan and Romania, where it is widespread.

One index of the relative success of the Chinese planned birth programs is the birth limitation rate, which is roughly equivalent to the current users' rate or current practice rate employed in some other countries. Measured in terms of this rate, the Chinese program is one of the great success stories in organized family planning. The birth limitation rate ranges from 70 percent in Heng County to 80 percent in Chang'an, Taoyuan, and Xinhui. For Guangdong Province, with a population of 55 million in 1977, the birth limitation rate was 76 percent.

No other Third World country with a population of over 3 million has accomplished such a feat. The Guangdong birth limitation rate of 76 percent may be compared to the 1976 current practice rate of 44 percent in South Korea, which together with Taiwan has often been cited as the greatest success in organized family planning in the Third World. The greater success in Singapore can be attributed to its unusual demographic, social, and economic characteristics rather than to its birth limitation program.

To sum up, in the areas we visited, a dramatic fertility transition has been accomplished by the widespread practice of late marriages, birth spacing, and two-child families. Most eligible couples practice the last two by using contraceptive methods of their choice and resort to induced abortion only to terminate an unplanned pregnancy.

Fertility Transition

Vital statistics for the areas we visited indicate that China has virtually completed its demographic transition. In five communes the crude death rate ranges from 6 to 8 per 1,000, the crude birth rate from 9 to 19 per 1,000, and the natural increase rate from 3 to 13 per 1,000 (table 6). In the five cities we visited, the crude birth rate ranges from 13 to 16 per 1,000, the death rate from 5 to 7 per 1,000, and the natural increase rate from 6 to 10 per 1,000 (table 7). In the rural counties we visited, the crude birth rate ranges from 11 per 1,000 in Miyun to 20 per 1,000 in Heng County and the natural increase rate from 4 per 1,000 in Miyun to 15 per 1,000 in Heng County. The rest of the counties have vital rates that lie somewhere between the two extremes (table 8). Guangdong Province had reduced its crude birth rate to 19 per 1,000 and its natural increase rate to 13 per 1,000 by 1977.

The incomplete time series we obtained suggests that a precipitous fertility decline began in the early 1960's and that once begun, it was rapid and substantial. Take Guangdong Province, for example: in 1962 its crude birth rate was 43 per 1,000, the highest recorded there. By 1977 it was down to 19 per 1,000. As we indicated earlier, for all practical purposes China's planned birth effort began in 1963 and seemed to have an immediate depressing effect on fertility. The time series for Guangdong province and Taoyuan County suggests that once the fertility transition began, it seemed to run its own course, oblivious to the almost continuous political upheaval and turmoil that gripped the country following the Cultural Revolution. In the 1965-70 period, the crude birth rate in Guangdong declined by 19 percent; in the 1964-69 period, the crude birth rate in Taoyuan declined by 37 percent (table 9). Fertility reduction of such magnitude in so short a time is extremely unusual in demographic transitions. Furthermore, the momentum of fertility transition has not only kept pace, but accelerated in the 1970's. Between 1972 and 1977, the crude

TABLE 6. Vital and Planned Birth Statistics of Selected Communes in PRC, 1977

Commune County Province	Henanzhai Miyun Beijing	Dazhai Xiyang Shaanxi	Luancun Chang'an Shaanxi	Macongling Taoyuan Hunan	Taoxu Heng Guangxi
Population	21,517	11,600	17,430	21,639	56,923
Crude birth rate	9	12	16	14	19
Crude death rate	6	7	6	8	6
Natural increase rate	3	5	10	6	13
Married women of reproductive age (MWRA)	2,301[a]	1,474	2,200	2,701	6,398
MWRA as percent of total population	10.7	12.7	12.6	12.5	11.2
Birth limitation rate[b]	87	87	84	91	78
Late marriage rate[c]			90		
Planned birth rate[d]			75		

[a]The figure quoted here refers only to married fertile women below age 49, and not married women of reproductive age.

[b]Percent of MWRA practicing effective method of contraception.

[c]Percent of marriages in which partners conform to the late marriage norm <23 for women and <25 for men.

[d]Percent of births conforming to "later, longer, fewer" norms.

birth rate declined by 52 percent in Taoyuan, and by 35 percent in Guangdong. Declines of a similar order also took place in Heng County, Miyun County, and Xi'an.

The vital rates and trends furnished by our Chinese hosts seem to be consistent with the circumstantial evidence obtained during our tour. At Beijing Maternity Hospital we were told that in the last 3 years, of all the babies delivered there, only 2 percent were third-birth-order. In the model commune, Dazhai, Shaanxi, the third birth order accounted for only 3-4 percent of all the babies born in 1976 and 1977. In Changsha, 80 percent of the babies born in 1977 were first-birth-order, 15 percent second-birth-order, and only 5 percent third-birth-order (table 10). While visiting Xinhui Maternal and Child Health Station, we examined the admission and treatment record, which shows a 19 percent rate of third-order births (see table 10 and appendix). However, since this is the general referral hospital for the county, these figures are probably not typical or indicative of the actual rate for the entire county.

TABLE 7. The Vital and Selected Planned Birth Statistics of Four Cities, PRC, 1977

City Province	Nanning Guangxi	Guangzhou[c] Guangdong	Xi'an[d] Shaanxi	Changsha Hunan
Population	530,000	5,100,000	2,633,805	897,000[f]
City proper	300,000	2,700,000	1,202,490[e]	697,000
Suburbs	230,000[a]	2,400,000	1,431,315	<200,000
Crude birth rate (per 1,000)				
Total	13.4	14.8	15.9	12.6
City proper		8	10.9	>10
Suburbs			19.9	14
Crude death rate (per 1,000)				
Total	4.8	5.7	5.9	7.1
City proper		6.2	4.9	
Suburbs			6.8	
Natural increase rate (per 1,000)				
Total	8.6	9.1	10	5.5
City proper		1.8	6	
Suburbs			13	
Married women of reproductive age	53,000[b] (10%)		384,860 (14.6%)	116,610 (13%)
Birth limitation rate	80%		81.9%	81.7%
Late marriage rate	97%		94.4%	97%
Planned birth rate	67%		67.1%	70.9%

[a]Of this, 150,000 are agricultural population in the suburban communes.

[b]The figure quoted here refers to married fertile women, and not married women of reproductive age up to 49 years of age.

[c]Also known as Canton, the municipality of Guangzhou consists of four urban districts in the city proper, one suburban district, and six counties. Of the total population of 5,100,000, 2,700,000 live in the four urban districts and one suburban district; the remaining 2,400,000 are mostly peasants living in the six adjacent counties under the jurisdiction of Guangzhou municipal government.

[d]Xi'an, the capital of Shaanxi Province, consists of three urban districts in the city proper, one suburban district, and an adjacent county, Changan County.

[e]Of this 51,799 live in the suburban district, and 1,150,691 in three urban districts in the city proper.

[f]Under the jurisdiction of Changsha municipal government are four urban districts in the city proper, one suburban district, and two adjacent counties, namely Changsha County with a population of 700,000, and Wuanzheng County with a population of slightly over 600,000. The figure quoted here does not include the population of the two counties. By the same token, all the rates quoted below refer only to the four urban districts and one suburban district, exclusive of the two rural counties.

TABLE 8. Vital Trends of Two Rural Counties, Two Cities, and One Province, 1963–79

County/City Province	Miyun Beijing		Taoyuan Hunan		Xi'an Shaanxi		Nanning Guangxi		Heng Guangxi		Guangdong		Xinhui Guangdong	
	CBR	NIR	CBR	NIR	CBR	NIR	CBR	NIR	CBR	NIR	CBR	NIR	CBR	NIR
Population (in 1977)	380,000		889,845		2,633,805		530,000		780,000		55,019,000			
1962											43	37		
1963							41	34						
1964			49	36										
1965											36	30		
1969			31	19										
1970											29	23		
1971					24	19								
1972			29	19	21	16					29	23		
1973	23				18	13			34	26	27	21		
1974	18		22	13	16	11			31	24	24	18		
1975	14		16	10	15	9			28	24	21	15		
1976	9		16	10	15	9			21	18	19	13	22	15
1977	11	4	14	6	16	10	13	9	20	15	19	13	16	10

CBR, crude birth rate; NIR, natural increase rate

TABLE 9. Reduction in Crude Birth Rate in One Province, Three Counties, and One City, 1962–77

Location	Period	Reduction (%)
Guangdong Province	1962–77	–62
	1965–70	–19
	1972–77	–35
Taoyuan County	1963–77	–71
	1964–69	–37
	1972–77	–52
Heng County	1972–77	–41
Xi'an	1971–77	–33
Miyun County	1973–77	–52

TABLE 10. Birth Parity Data

Place	Period	Population	Births	1st Order (%)	2d Order (%)	3d Order (%)
Beijing Maternity Hospital	1974–77			60+	30+	2
Dazhai Commune Xiyang County	1976		150	70–80	16–27	3–4
Shaanxi Province	1977		137	50+	47	3–4
Zhaozhuang Brigade Yangzhuang Commune Xiyang County Shaanxi Province	1977	503	6	67	33	...
Changsha Hunan Province	1977	897,000	...	80	15	5
Yanan Commune Xinhui County Guangdong Province	1978 (several months)	6,020	25	72	24	4
Xinhui County Maternal and Child Health Station	1978 (unknown period)		21	67	14	19

Conclusion

The Chinese do not use the term "community-based distribution" (CBD) to describe their nationwide birth control network. Nevertheless, theirs is the largest CBD network in the world. Furthermore, the planned birth service

component of their CBD is 100 percent Government subsidized. Counter to the conviction of many proponents of CBD family planning programs who believe that free service results in a lack of appreciation by clients and less use of the service, there is no charge for planned birth supplies or operations.

In China not only are services free and community-based, but so is the information, education, and motivation program. Instead of sending outsiders into villages to preach planned birth, the Chinese try to convince grassroots community leaders that population planning yields benefits. These local leaders in turn use their own language to preach the virtues of planned birth and work out their own way to implement the program goals. In fact, the community planning model we have described was first used by local leaders in a remote rural county, Rudong, in Jiangsu in the late 1960's. Only after its spectacular success did the Government extend the idea by organizing an on-the-spot conference in Rudong, to which planned birth workers from all the counties were invited. In China, both planned birth workers and grassroots leaders are expected to exercise leadership by personal example. They are the first to "take the plunge" in practicing late marriage, contraception methods like vasectomy or tubal ligation, and bearing only two children.

In the last few years a few thoughtful scholars in the West and elsewhere have called for a shift in emphasis from regarding individuals as clients to regarding communities as clients. They have also considered how to get the community to exert social pressure on households to regulate births by internalizing the small family norm. China has not only learned to develop and enforce a community plan of births, but also puts it to practice on a national scale. Outside China, the only program that has the community-based approach to distribution and IEM is that in Bali, Indonesia. Since late 1974 the Bali population program has coopted the ubiquitous banjur system that existed in this island for hundreds of years. It is now providing community-based service and conducting community-based IEM activities, in which the banjur leader, the *kelian*, plays a key role. The result has been spectacular: by June 1978, 65 percent of the eligible couples were using contraceptives. This extraordinarily high rate has been accomplished in a milieu where farm work occupies the overwhelming majority, per capita income and the literacy rate remain low, and traditional Balinese Hinduism continues to exercise sway over people's daily lives. Because of its success, the Balinese population program has already met the target set by the Indonesian Government for the year 2000.

Although both Bali and contemporary China are underdeveloped societies, they differ vastly in culture, economic system, and politicosocial organization. Yet both have accomplished feats beyond the dream of most family planning administrators. The key to their success is the ingenious use of preexisting grassroots social organizations—the production team in China and the banjur in Bali. This is food for thought for those who are searching for a better way to spread family planning in underdeveloped countries.

APPENDIX

Patients at the Xinhui County Maternal and Child Health Station, June 28, 1978[a]

Age of Patient or Mother	Sex of Baby	Birth Order	Treatment
25	M	1	
20	M	1	
27	M	1	
28	F	1	
29	F	1	
28	F	2	
26	M	1	
32			Postpartum sterilization
29	F	3	
28	M	1	
29	F	3	
29	M	1	
28	F	2	
26			Midterm induced abortion[b]
32	F	3	
24	F	1	
29	F	3	
37	To deliver	1	
29	F	2	
27			Incision of oval cancer
30	F	1	
24	F	1	
21	F	1	
35			Midterm induced abortion[b]
32			
52			Tumor treatment
45			Control bleeding
36	To deliver	1	
25	To deliver	2	
31	To deliver	1	
20	F	1	
32	F	1	
31	To deliver	2	

[a]This record was copied, with the assistance of Everett Rogers, on June 28, 1978.

[b]Midterm induced abortion is defined as terminating pregnancy beyond 3 but within 6 months of gestation.

14

Diffusion of Health and Birth Planning Innovations

Everett M. Rogers

Introduction

This chapter describes how innovations in health care have spread in China. The information comes mainly from our interviews with health and birth planning officials at the provincial and county levels. We asked them to tell us how barefoot doctors and cooperative medical service had spread. They provided many details, and we were able to check much of what they said against articles published in the *People's Daily* in the late 1960's and 1970's.

Innovations were often developed by local units and extended to other local units through "on-the-spot conferences." However, the State plays an important role in spreading innovations by monitoring progress and providing expertise. The mass media also help by informing the public about needs and problems and describing local innovations developed to meet such problems.

Stages in Diffusion

In contrast to diffusion processes we have studied elsewhere, China's is more horizontal, less dependent on scientific expertise, and more flexible in allowing local adaptations. Let us trace the spread of two interrelated innovations—barefoot doctors and cooperative medical service—through five stages: (1) problem definition, (2) search for alternative solutions, (3) evaluation, (4) diffusion/implementation, and (5) institutionalization (table 1).

Problem Definition

The barefoot doctor concept was a radical innovation when it began in China. Barefoot doctors were not just physicians' assistants or auxiliaries, but people trained to diagnose and treat common diseases without assistance or close supervision from medical doctors. One would expect such a departure to

TABLE 1. Five Stages in the Innovation Process for Barefoot Doctors/Cooperative Medical Services

Stages/Dates	Main Events
1. Problem definition	
June 26, 1965	Chairman Mao Zedong issues his directive criticizing the Ministry of Health and calling for greater stress on rural health.
2. Search for alternative solutions	
August 17, 1965	National conference revives the idea of training large numbers of "part-farmers/part-doctors" (the term "barefoot doctors" was not yet used) to man the rural health system.
1965–66	Jiancun Commune, Jianjing County, Shanghai Municipality, initiates a barefoot doctor system. Mao endorses an investigative report on this experience.
1966	Cultural Revolution begins, and the Ministry of Health is heavily criticized. Essentially it ceases to function in giving direction to the emerging rural health system. Control over the Chinese health system is thus demedicalized and decentralized by Mao.
1965–68	Widespread experimentation is begun by local units (counties, communes, and production brigades) to identify viable forms of the barefoot doctor/cooperative medical service concept. Many of these local innovations fail.
September 1968	*People's Daily* publishes an article about the Jiancun Commune's experiences with barefoot doctors, reporting an evaluation of this innovation and an endorsement by Mao.
1968	The innovation of cooperative medical service is worked out by Luoyan Commune, Zhuayong County, Hebei Province and is widely publicized.
3. Matching the innovation with the problem	
1968–70	Many attempts are made to begin implementing barefoot doctors/cooperative medical services by local units in rural China; many fail because people will not accept barefoot doctors as competent, and because of financial problems.
Early 1970's	Commune hospitals in some areas are underused because barefoot doctors are now treating patients at production brigade health clinics; implementation of an innovation often causes second-order problems.
4. Diffusion/implementation	
1968–76	National models are used to diffuse the two innovations (Jiancun Commune for barefoot doctors, and Luoyan Commune for cooperative medical service), along with similar models at the provincial and county levels. These models are coupled with other strategies for horizontal diffusion such as on-the-spot conferences, conferences of advanced representatives, reinvention of the innovation by local units, the rhetoric of the innovation by local units, the rhetoric of the mass line, and the provision of individual models by cadres.
5. Institutionalization	
1976 and thereafter	Barefoot doctors/cooperative health service are widely adopted in rural China; efforts are turned to upgrading the technical competence of selected barefoot doctors through advanced training. Greater emphasis is placed on such related innovations as birth planning (which began in the early 1970's in rural areas), and uxorilocal marriage. In 1972, Rudong County, Jiangsu Province, is designated as the national model for birth planning in rural areas.

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encounter stiff opposition from the medical profession and traditional Chinese health practitioners, whom the barefoot doctors would partially replace. The medical profession's resistance was overcome by Mao Zedong's June 26 directive, which set off a widespread search for alternative means of meeting rural health problems. It also specified guidelines that formed the ideological basis for developing the new rural health system in China:

- Medicine/health programs must serve workers, peasants, and soldiers: the working people;
- Preventive health should be given greater emphasis;
- Chinese traditional medicine should be integrated with Western scientific medicine; and
- Health activities should be integrated with mass movements.

Search for Alternative Solutions

Barefoot doctors. The national conference of August 17, 1965 [9], which revived the idea of "part-farmers/part-doctors" to deliver health services in production brigades, also concluded that health aides should be trained for certain health duties in production teams. There had been some prior experience with mobile medical teams in rural China, and their numbers were greatly expanded after 1965, especially to train and assist barefoot doctors. Up to one-third of the medical staff of urban hospitals were stationed in rural areas for 6 months to 1 year.

The Cultural Revolution had essentially eliminated the Ministry of Health from directing the search for a usable barefoot doctor concept. Developing the innovation has thus fallen largely to local production brigades, communes, counties, and provinces. As explained in chapter 7, the term "barefoot doctor" is credited to Jiancun Commune [2].

Other local units were also experimenting with variations on the barefoot doctor theme. Some succeeded; many failed. The first barefoot doctors—then called "half-half workers"—were trained in Miyun County, Beijung Municipality, in 1965, soon after Mao's directive. At first, only one "half-half worker" was trained for each production brigade in the county. Impetus to launch the first barefoot doctor training program came from a Beijing hospital mobile medical team, via an order to the Miyun County health director from his superiors in the government of Beijing Municipality.

The initial 6 months training of barefoot doctors was given in the county hospital and in the various commune hospitals in the county. The number of barefoot doctors per production brigade was gradually increased from one to three or four, and in 1976 a goal of one barefoot doctor for 200 people was adopted (the national goal was 1:400). In recent years, specialized in-service

training of barefoot doctors was launched, and junior high school graduates were being trained at the county hospital, where a higher level of medical expertise is available. After 1970, when Miyun County leaders learned about the experience in Jiancun Commune, the "half-half workers" were called "barefoot doctors."

Cooperative medical service. The barefoot doctor innovation was impractical on cost grounds until it was combined with the related innovation of cooperative medical service. These services were successfully pioneered in Luoyan Commune in Zhuayong County, Hebei Province (table 1). The cooperative medical service usually obtains funds from individual members of the production brigade, its welfare fund, and the commune welfare fund. The commune also guarantees the cooperative medical service of each of its production brigades against bankruptcy. The main costs incurred by most cooperative medical services are for drugs and reimbursements to commune and county hospitals for treating members of the production brigade.

Local units played the dominant role in the search for ways to solve the rural health problem in China. Thus technical expertise (except for that provided by the mobile medical teams) seems to have been less important than the initiative of local people. Barefoot doctors/cooperative medical services did not rise from government R&D or from university schools of medicine (as probably would have occurred in the United States). This central role of local experimentation is consistent with (1) the decline of the Ministry of Health during the Cultural Revolution, which occurred at approximately the same time as the development of the barefoot doctor/cooperative medical service innovations, (2) the high degree of decentralization in the administration of the Chinese health system, and (3) the Maoist philosophy, "Knowledge starts with practice."

In recent years, scientific experts in China have been concentrated in government research institutes that are highly applied in nature. Scientists have been rewarded for solving social problems, not for publishing their findings for fellow scientists. In short, research expertise in China was oriented toward putting research results into practice.

At the time of our visit for example, research topics at the Shaanxi provincial antiepidemic station (near Xi'an) were selected for investigation on the basis of local health problems, such as a recent outbreak of leptospirosis (a disease carried by rats in the rice fields) in nine districts. This investigation had also been suggested by the provincial health department, the Ministry of Health, and the Chinese Medical Association.

A year-end evaluation was made of all research staff to determine the degree to which their research findings had been applied to actual health problems by counties, communes, and production brigades. One laboratory in the station won a unit citation for outstanding performance in 1977. This honor was given, not just for producing an important research finding, but because the

results led to eliminating an internal parasite. The scientists had written of their findings in publications and participated in short courses for health officials so as to assist in implementing control procedures for the parasite. In short, the reward system for health researchers encouraged the application of findings into practice.[1]

Mao's philosophy of putting the masses rather than the experts in a key role was stated in 1943 [4]:

> Take the ideas of the masses [about needs and possible solutions] and concentrate them [through study, into more systematic innovations]; then go to the masses and propagate and explain these ideas until the masses embrace them as their own, carry them out, and persist in this on their own; then test the correctness of these ideas in action. [Then repeat the process] over again in an endless spiral, with the ideas becoming more correct, more vital, and richer each time.

This statement accurately reflects the innovation process for barefoot doctors/cooperative medical service in China from 1965 to 1978.

Matching the Innovation With the Problem

At this third stage in the innovation process, the potential innovation is evaluated for its ability to solve the problem which, in the present case, was the lack of adequate low-cost health services in rural China. Articles in the *People's Daily* featured an "investigative report" of the performance of barefoot doctors and cooperative medical services. Such evaluation is typically conducted by higher level officials who visit the local unit and review performance data. Key evaluation questions are considered, such as:

- Do the people like the innovation?
- Is the innovation cost-reasonable and affordable?
- Is it politically appropriate and consistent with Marxist/Leninist/Maoist thoughts?

The September 1968 *People's Daily* article about barefoot doctors in Shanghai Municipality had great impact because it carried the endorsement of Mao. He had reviewed and approved the investigative report about barefoot doctors in Jiancun Commune and had personally visited the commune to observe barefoot doctors in action. Perhaps such a laudatory article with the stated approval of Chairman Mao was tantamount to a directive to adopt the innovation.

[1] Since mid-1978 there has been a shift in policy toward more basic research as part of China's "four modernizations" campaign.

This published evaluation of the barefoot doctor idea in Jiancun Commune used a powerful communication channel; the *People's Daily* is the official organ of the Communist Party in China. It is the only national newspaper aimed at the public. Published in about 4.5 million copies, it is one of the world's largest-circulation newspapers, perhaps surpassed only by *Izvestia* and *Pravda*. Regular readership is many, many times 4.5 million because each issue is posted on the walls of commune halls, factories, and public buildings. Each cadre is expected to read the paper every day and convey its contents to other members of the small study group of fellow citizens that the cadre may lead. In addition, the paper is read aloud several times a day over the radio.

Articles about health and birth planning models inform the public about both the positive and negative lessons learned from the model's experience. Typically, an article will measure program achievements against objective indicators of success (for instance, the "later, longer, fewer" of birth planning, or the "two musts and five shoulds" of rural health). Data are usually presented about (1) the indicators for one unit (for example, a county, commune, or production brigade) over time, or (2) the unit's performance is compared to another unit to show relative progress.

Statistical analysis of possible independent variables related to the performance indicators is not made, as might be expected in a program evaluation in the United States. Instead, there is a more qualitative, intuitive analysis of key factors. Such "mental analysis" may not be as precise as statistical analysis in establishing relationships among the variables, but it may be appropriate in making formative evaluations.[2]

Evaluation of an innovation permeates the entire diffusion process in China. A social problem may be perceived initially from having monitored the trend in some performance criteria. Local initiatives to develop appropriate innovations to deal with the problem are encouraged and evaluated. A model program is chosen on the basis of evaluative information about its performance, and participants at on-the-spot conferences seek to evaluate it. The diffusion of such innovations is then monitored by officials by regular reports from lower units. Many local officials carry a notebook filled with up-to-date performance data about their unit. When reported to higher units and aggregated, these data provide a kind of management information system. There is certainly a highly developed respect for evidence in China, although the evidence is not always as quantitative as that in the United States.

Higher level units select for evaluation local units under their jurisdiction with outstanding records of performance in implementing an innovation. An

[2]Formative evaluation is conducted while an activity is ongoing, to improve its effectiveness. Summative evaluation is conducted to reach a decision about the effectiveness of an activity after it has run its course. Published evaluations in China are designed to give further innovation, not judgment as to whether an innovation should be continued.

evaluation team is then sent to investigate successful accomplishments and to verify the validity of the achievement.

Diffusion and Implementation

Solving one problem by innovation can cause another. In the early 1970's, when barefoot doctors were first widely used in rural China, commune hospitals began to be underused because many patients they formerly treated were being seen by barefoot doctors. The Chinese responded by (1) easing the requirement that clients must be referred to the commune hospital by their barefoot doctor, (2) providing commune hospitals with X-ray machines and microscopes, so they could care for some of the patients formerly referred to county hospitals, and (3) by sending down more mobile medical teams to production brigades.

At this fourth stage barefoot doctors spread throughout rural China, sometimes with modifications of the ideas. Diffusion in China is unusual in the degree to which it is horizontal rather than vertical. Horizontal diffusion is summarized in the slogan "Grasp both ends and move the middle forward," which means that the most advanced units should be a model pulling ahead those units lagging behind.

Models and on-the-spot conferences. The use of models[3] and on-the-spot conferences is crucial in diffusing innovations in China. One of the first such uses occurred in the Chinese venereal disease campaign in 1958. A large-scale mass screening for venereal disease was conducted in one county in Jiangxi Province; and after training the personnel, screening the public, and treating the venereal disease cases had been satisfactorily completed, the Ministry of Health held an on-the-spot conference. Delegates from all the provinces came to observe and discuss the strategies used. These aspects of the innovation were then taken home by the conferees and applied to their own counties [10].

The innovation demonstrated in the exemplary model is not expected to be copied exactly; instead, emphasis is placed on following the general concept.

[3]A model is a local unit (usually a county, commune, or a production brigade) that pioneers in inventing and developing an innovation, in evaluating its results, and in serving as an example for the diffusion of the innovation to other units.

Another diffusion strategy is the on-the-spot conference at the site of a model, which allows participants to see the innovation in use by a local unit, ask questions, observe its effectiveness, and consider how the idea might be used in their own home unit. Following the conference, the participants report to their peers, who then decide whether or not to adopt the innovation, and if so, how to fit it to local conditions. Cadre leaders are more likely to be sent to on-the-spot conferences where they exchange their units' experience with the innovation. Such exchange is called "letting the cadres educate the cadres" [1]. Selection to participate in an on-the-spot conference is considered a reward, as indicated by the slogan "Go out and seek the treasure."

The result is often a certain degree of variety in the forms of the innovation actually implemented by local units. For example, in the early 1970's Western observers reported a wide variety of different versions of the barefoot doctor concept then in operation.

The October 1968 article in *People's Daily* set off many similar barefoot doctor pilot projects in various parts of China. The official in charge of rural health work in Hunan Province told us that he first learned about the Jiancun Commune project in July 1968. This official and several of his colleagues in the Hunan Provincial Health Department selected Yinchong County as the site for launching their barefoot doctor program; they studied the local situation and consulted with commune and brigade leaders about training barefoot doctors and organizing a cooperative medical service to fund local health activities. They trained two barefoot doctors in each of 70 production brigades in Yinchong County.

The results of this project were evaluated and featured at an on-the-spot conference in November 1969 (after the 140 barefoot doctors had been in place for about 1 year). Over 300 delegates attended this conference, which met for 1 day in Yinchong County and 6 days in Changsha, the capital of Hunan, about 200 kilometers apart. By this time about two-thirds of the production brigades in Hunan had experienced some kind of bankruptcy, and a variety of barefoot doctor projects were being tried (some were not successful because people refused to go to their barefoot doctor in case of injury or illness, and indeed some of the barefoot doctors were not very competent in medical matters). The conference was intended to consolidate the knowledge that had been gained from the experiences in Hunan. Yinchong County was visited during the on-the-spot conference because its barefoot doctors were relatively successful. Prior to the conference, each county in Hunan was asked to "dig out" its experiences with the innovations, which were then summarized by the provincial health department staff and distributed in written form at the conference.

At the conclusion of this conference, reports were published in *People's Daily* and in the Hunan provincial newspaper. There were also several articles on the barefoot doctor/cooperative medical insurance project in Shanhong Commune, Heng County, Guangxi, which was also considered to be relatively successful. Similar on-the-spot conferences were held in many other provinces in 1969.

Hunan has held on-the-spot conferences on rural health each year since 1969. The July 1970 conference was held in Linwu County and was devoted mainly to problems of insolvency of the cooperative medical services. Some brigades' health systems would be out of funds by midyear, and then the barefoot doctor would have no drugs to dispense. Linwu County was selected for the conference because its communes guaranteed the cooperative medical service funds in case of insolvency, an element in the innovation that is now in widespread use in rural China.

Two barefoot doctors in Hunan became famous as individual models of the new paraprofessional role. One was in Taoyuan County, the other in Mayin County. During 1975 the latter was featured in several articles in the *People's Daily*. In spite of her success, she declined offers to leave her production brigade for more responsible health positions elsewhere; one article was entitled "She Never Leaves the Battlefields." The mass media recognition accorded these two barefoot doctors, the annual on-the-spot conferences, and the gradual solution to local financing problems of the rural health program led to widespread adoption of the barefoot doctor/cooperative medical service innovations in Hunan. By 1976, the number of barefoot doctors leveled off at 103,551 and remained at about this figure in mid-1978. So the diffusion to barefoot doctors/cooperative medical services was largely completed by 1976.

Rhetoric of the mass line. China is distinctive in its use of catchy slogans as a diffusion strategy for conveying innovations in a popular "shorthand" form [3]. The basic idea of the "mass line" is to take ideas from the masses, summarize them, take the ideas back to the masses, explain and popularize them, and translate them into action.

Following are some illustrations of the rhetoric of the mass line in the form of slogans.

- "China must walk on two legs" (by integrating traditional Chinese medicine with Eastern scientific medicine);
- "Three don't wants" (stressing the self-reliance of Dazhai Brigade);
- "Grasp both ends and move the middle forward" (indicating the use of advanced units as models to diffuse an innovation to the majority of units).

Other examples of slogans were encountered by our delegation:

- "Two controls and five improvements" (chapter 3);
- "Heavy in the head, light in the feet" (to indicate the advantage of decentralized health administration in avoiding a top-heavy bureaucracy);
- "From small to large" (begin with a pilot project of an innovation and then spread it);
- "From key points to general application" (diffuse an innovation from models through one-the-spot conferences and by other means);
- "Sending out and inviting in" (send participants to on-the-spot conferences and invite experts like mobile medical teams to assist in implementing an innovation);
- "Later, longer, and fewer" (chapter 13);
- "Three high, three low" (chapter 13);

- "Bar, bar, block, block" (the "bars" [vertical arms of government] and the "blocks" [local units] should collaborate to maximize local responsibility and self reliance in carrying out health/birth planning programs).

One important function of this rhetoric is to nationally popularize and standardize understanding of certain innovations, policies, and diffusion strategies. Each slogan must be applied in practice in somewhat different and flexible ways. The ambiguity and incompleteness of these slogans invite interest and involvement.

Cadres as role models. Not only can brigades, communes, and counties serve as diffusion models for other such local units, but individuals can also provide role models. Especially important in this regard are cadres, the political, administrative, or technical leaders of China found at all levels of society. Cadres must provide leadership by personal example; they are expected to "take the plunge" in adopting an innovation. For example, when sterilization was first promoted as a family planning method in China, local cadres (such as the chairmen and vice chairmen of party committees and revolutionary committees) were the first to adopt it [1]. Such early adoption of State-recommended innovations helps decrease the risk and uncertainty of these new ideas for the public. Cadres do not ask their followers to do anything they themselves have not already done. For example, in Xinhui County, Guangdong, vasectomy is more popular than in most of rural China (20 percent of the 71,771 adopters of contraceptive methods in the county have male sterilization). The male cadres were sterilized and then told their followers that the operation had no serious side effects. Thus the cadres, motivated by a sense of altruistic responsibility, political loyalty, and internalized expectations, adopt an innovation first and help make it more acceptable for their followers.

Reinvention

Reinvention is the degree to which an innovation is changed by the adopter in the process of adoption and implementation after its original development [7]. Although not originally recognized in the classical diffusion model, U.S. diffusion scholars in the 1970's have documented the occurrence of reinvention for certain innovations.

China seems to encourage reinvention:

> The Chinese Government's . . . decisions on many important issues have a tentative and experimental quality. They are cast in the form of general statements, indicating models to be followed or goals to be attained, but not specifying exact procedures, forms, and relations. The meaning of such a

> decision emerges only in practice as lower levels carry out their preliminary work and begin to develop concrete responses to the tasks demanded of them [8].

As stated earlier, a guiding principle of the Chinese health system is centralized policymaking combined with decentralized implementation of the policy [1]. This approach is appropriate in a nation like China, where there is tremendous diversity in local conditions and where the problems and needs of each local unit may be somewhat different.

A popular slogan in China, *Yin di zhi yi* ("Make the best use of your conditions"), is quoted as one justification for reinvention and the differing applications of an innovation. Such initial diversity in applying a policy innovation to implementation is replaced by a greater degree of standardization as more information is obtained about how much reinvention is necessary. In chapter 7 we documented the diversity we encountered in the barefoot doctor concept: variation in medicines and equipment in the medical kits, the content of training programs, the types of health/medical responsibilities they are expected to assume, and the supervision they receive. Similarly, cooperative medical services vary from production brigade to production brigade; some do not require individual contributions to the annual funds, while others do. Some production brigades charge a registration fee; others charge nothing.

Institutionalization

At this final stage the innovation becomes a regular part of the ongoing operations of the adopters. At this point it is no longer recognized as an innovation because it has become incorporated so fully into the routines of the adopting unit.

We were told that by the mid-1970's about 1.8 million barefoot doctors were trained and in place and almost all production brigades had cooperative medical service. The related innovations had been adopted throughout most of rural China (table 1). Then, from approximately 1976 through 1978, the rural health system could begin greater standardization of the innovations (for example, through publication of barefoot doctors' manuals, described in chapter 7).

Once the basic innovation of barefoot doctors/cooperative medical services was in place through rural China, efforts could be devoted to promoting related innovations such as (1) advanced training of certain barefoot doctors to upgrade their competency in such specialties as birth planning/maternal and child health, (2) group planning of births and other aspects of birth planning, and (3) uxorilocal marriage.[4] These innovations were diffused through models and on-the-spot conferences.

[4] In which the newly married couple lives with the bride's family.

Discussion

The diffusion of innovations in China is distinctive in that it is (1) more horizontal in nature, (2) less dependent on scientific expertise, and (3) more flexible in allowing reinvention of the innovation as it is implemented by local units. These three aspects are facilitated by China's use of such diffusion strategies as models, on-the-spot conferences, the rhetoric of the mass line, and the provision of personal models by the cadres.

The "learning from others" approach to horizontal diffusion in China was officially adopted as a national policy in the State Constitution in 1978. This diffusion from models is not only a domestic policy in China, but also an implied guideline on an international basis for the "four modernizations" (of agriculture, industry, national defense, and science and technology) that began in 1978.

Local models are certainly one of the most important diffusion strategies in China. There is a rather direct U.S. parallel to the Chinese models: federally sponsored demonstrations of an innovation. Introduced by agricultural extension agents about 70 years ago, the use of demonstrations has spread to education, health, public transportation, and many other fields in the United States. These demonstrations can be categorized into two classifications,[5] according to their main functions:

- *Experimental demonstrations* function mainly to determine how well a technological innovation performs under field conditions;
- *Exemplary demonstrations* function mainly to disseminate information about a technological innovation horizontally to peers of the demonstrator.

Conventional wisdom in the United States indicates that it is difficult for a demonstration to be both experimental and exemplary, because the ideal characteristics of each are contradictory. For example, an experimental demonstration usually should be highly technical in nature, involve low public visibility, be oriented toward replicating prior research results under controlled conditions, and be approached with an air of skepticism. In contrast, an exemplary demonstration usually should be highly publicized, conducted under realistic and varying conditions (without controlling external variables), and viewed with an air of optimism (in that the innovation is portrayed as a viable solution to a social problem) [7].

Chinese models seem to function as both experimental and exemplary. The lack of seeming conflict in these two functions may be due to the fact that a model initially is mainly an experimental demonstration, and serves later as an

[5]The present categorization is based directly on Meyers [5], but other authors have utilized a similar distinction.

exemplary demonstration. For example, Jiancun Commune was an experimental demonstration from 1965 to 1968, when the concept of barefoot doctors was being worked out and evaluated; thereafter it served as an exemplary demonstration in diffusing the innovation to other units.

Perhaps models in China are somewhat unlike those in the West in that they receive no extraordinary inputs of expertise or resources, so they can more easily be replicated through widespread diffusion. The lack of special inputs characterizes models not only as exemplary demonstrations, but also as experimental demonstrations.

In analyzing the diffusion of technological innovations in small-scale industry, a visiting U.S. delegation stated: "What we witnessed in China was an extensive, flexible, and varied system for acquiring, adapting, and utilizing standard technologies" [6]. This conclusion also accurately describes our impression of the Chinese diffusion of health/birth planning innovations. We expect that the nature of the diffusion process described for health and birth planning also applies with some modifications to agriculture, industry, and other types of development.

The People's Republic of China is a distinctive system—politically, economically, and socially. Whether any particular aspects of its approach to diffusion can be effectively borrowed by other nations is an open question. But at a general level, the horizontal approach to diffusion used in China can probably be transferred elsewhere.[6]

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[6]Since 1973, an unusual type of horizontal diffusion system for educational innovations—the National Diffusion Network (NDN)—has arisen in the United States. The role of the Federal Government is mainly limited (1) to identifying promising "models" in the form of an educational innovation that has been developed by a local school, and (2) then providing limited funding to facilitate horizontal diffusion to other schools with a similar problem. NDN was designed without any knowledge of the horizontal approach to the diffusion of innovations in the People's Republic, as was another horizontal diffusion system, the National Science Foundation's program for diffusion networks of technology transfer among U.S. cities.

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Mental Illness

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David Mechanic

Introduction

Our limited view of the treatment of mental illness in China comes from several sources: (1) visits to two departments of psychiatry and one outpatient neurology clinic in teaching hospitals in three urban areas; (2) reports on or observation of psychiatric patients treated in hospitals and clinics in rural areas; and (3) interviews with patients displaying psychosocial concomitants of physical disease or somatization of psychological problems in rural clinics. The last subject is reviewed primarily in chapters 5 and 8.

There is a long history of stigmatization of mental illness in China prior to 1949. This stigma continues in present-day Taiwan, Hong Kong, and overseas Chinese communities, [1,2,5,6,8,19]. From our brief visit, we could not gauge its magnitude today, but we were frequently told by cadres and health workers that they were facing up to this problem through popular education. However, Chinese reticence regarding mental illness and psychiatry can be inferred from the hesitancy, embarrassment, and limited extent to which public health and health care personnel in China are willing to inform visitors on this subject. This reticence may receive further support from a simplistic reading of Marx and Mao that associates mental illness with the "evils" of capitalist society and assumes that it should not exist in a socialist state.

For these and perhaps other reasons, mental illness is not highlighted in China. During our meeting with China's vice minister of health, Tan Yunhe, we were informed that ". . . in the countryside mental illness is not a major problem and its incidence is not high." The fact that mental illness is not regarded as a major public health or health care problem was reiterated in our discussions with the vice president, deputy secretary-general, and leading member of the Beijing branch of the Chinese Medical Association. Their views were largely reiterated by officials and medical and public health personnel during our visits to county, commune, and production brigade health facilities.

Seymour Kety, in concluding his observations about psychiatry in China in 1973, posed a perplexing question: Why are the Chinese so reluctant to talk about psychiatry or to acknowledge mental illness when there are indications of progressive care and accomplishment? [4]. Kety, a prominent researcher, describes his difficulties in meeting colleagues and visiting psychiatric facilities. Most visitors seem to be directed to the same institutions—the #3 Hospital of Beijing Medical College that we visited, and the Shanghai Psychiatric Hospital. Visits to #3 Hospital have also been noted by Sidel [17] and Lowinger [13]. At this hospital we saw a planned performance by psychiatric inpatients. We also noted a listing of psychiatric diagnoses in English mounted under glass on a desk, presumably for responding to English-speaking visitors. Lowinger's report [13] could serve as a partial transcript of our own visit. Any generalizations on the basis of our visits to these specially selected institutions must therefore be made with great caution.

A point to remember is that the Chinese usually speak in normative rather than empirical terms; their descriptions are often idealized. In the psychiatric area we found access difficult. We also found great discrepancy between their ideology and what we could see with our own eyes, even in their model institutions.

It has been maintained and reported by Sidel [17], for example, that after Liberation "isolation and binding of patients were . . . prohibited." But in one teaching institution we saw three patients bound by their hands and legs in locked isolation rooms. We were assured that psychiatric units we visited were not locked, yet we could see a physician holding a key in anticipation as we approached certain units. When we asked sensitive questions about social aspects of mental illness, we were told that psychiatry in China is a biological discipline, not social psychiatry. Despite our repeated requests to see non-teaching psychiatric units—and our knowledge that they were sometimes close by in areas we were visiting—we were always told that the institutions were too far away. We would be driven to rural areas 4 or 5 hours away to see model production brigades when there were brigades within walking distance of the compounds where we stayed. It was impossible to see psychiatric units 10 minutes away. It is exceedingly difficult to evaluate the claim that there is little mental illness in China. Only rarely did we see data to support such claims, and the data available to us were highly inadequate.

In the suburbs of Xi'an, five members of our group strolled unaccompanied into a farming brigade near our hotel. We saw a man behaving strangely there. His neighbors told us he had a serious mental illness of many years duration. At least once, this 46-year-old man had spent several months in the provincial psychiatric hospital. He was cared for by his children and wife, and neighbors offered help from time to time. He had not been in the hospital in recent years. He was described by his neighbors as harmless, but they added that he frequently "says strange things and speaks in a strange voice and has strange

thoughts." They claimed not to fear him and paid little attention to his exaggerated behavior with us. At one point he brought out a large pipe, put on a hat, and spoke in a falsetto voice. One of his daughters shooed him back into their home with a threatening voice and a few light slaps. This patient's production team did not have a barefoot doctor nearby, but was close to a hospital. It was unclear how often he went for treatment, and we did not learn what kind of treatment he received. Nor did we learn whether his work responsibilities were different from those of his neighbors. This was the only example we witnessed of a patient with chronic mental illness in a community setting.

China is largely a rural nation dependent on simple agricultural methods. Strong family ties and cohesive social organizations abound at production team, brigade, and commune levels. This tends to shelter mentally impaired persons and can provide sufficient social support and restraints to mask the more bizarre manifestations of mental illness. Moreover, because mental illness is seen as equivalent to psychosis and apparently is still stigmatizing for families, it may be more readily ignored, normalized, or handled as physical illness or as an issue requiring social control rather than treatment. They claim that "adequate maternal and child care, economic security, and the solidarity of the people with a common purpose—national reconstruction—are all factors likely to reduce the rate of mental disorders" [3]. This is possible, but the link between such factors and psychosis must remain problematic.

Other Reports

Given the absence of epidemiological data, we can say very little about the incidence of mental disorder in China. Our visits and discussions, however, provide some sense of their pathways into treatment and contexts of care. Findings from psychiatric epidemiological studies conducted in other Chinese communities disclose roughly the same amount of psychiatric morbidity with respect to the major psychoses as in Western societies [10]. However, alcoholism and homosexuality have a decidedly low prevalence. Lacking epidemiological evidence from our hosts that would refute findings from other studies of Chinese population groups outside, we think it plausible to assume that the prevalence rate for psychiatric disorders inside the People's Republic is roughly similar to that of Chinese in Hong Kong [9], Taiwan [11], Singapore [15], and the United States [18].

Studies have determined that most mental illness among Chinese is somatized (i.e., manifested as physical rather than psychological complaints). Our own observations in China are consistent with this view. Tseng [20] discovered, for example, that 70 percent of the patients who visited the psychiatric clinic at National Taiwan University Hospital and were later demonstrated

to be suffering from psychiatric disorders complained chiefly of physical ailments. We encountered instances of this among patients suffering from depression at all levels of the health care system we visited. It is therefore plausible to assume that a similar number of other psychiatric problems are somatized there. Perhaps public health and health care personnel fail to see the true prevalence of mental illness because of their own concepts of illness, coupled with the absence of epidemiological data.

In Taiwan, minor mental illness (depression, anxiety neurosis, hysteria, hypochondriasis) is most frequently labeled as "neurasthenia" (*shenjing shuairuo*) or given a culture-specific diagnosis ("wind disease" or "kidney deficiency"). For laymen—and often even for practitioners—these labels connote physical rather than psychological distress and sanction a medical rather than a psychiatric sick role [7].

Depression among Chinese, when labeled as "neurasthenia" or "kidney deficiency" (*shen-kui*), is not only categorized as a physical disorder, but appears to be experienced vegetatively, not intraphysically. This in turn influences the choice of health care services. Patients with mental disorders initially go to Chinese-style doctors, Western-style general practitioners, or shamans, not to psychiatrists or psychologists. Only if their disorders worsen significantly and are perceived as severe and untreatable by the usual practitioners do patients enter psychiatric treatment facilities [see ref. 12 for data on Chinese in Vancouver].

Chin and Chin [1] suggest that, at least until the Cultural Revolution, "neurasthenia" may have served the same function in China as in Taiwan and other Chinese communities. It was our general impression that "neurasthenia" represents the largest single illness category of psychiatric patients in outpatient practice in China and that most patients with psychiatric disorders are therefore treated in general medical and neurological settings rather than in psychiatric ones.

General Observations

In almost all the cases we observed, both physician and patient saw the underlying disease as a physical one. When they did recognize psychological problems, these were viewed as caused by the "underlying" physical disorder. Rarely was a diagnosis of mental illness entertained by either doctor or patient. Moreover, these problems were not managed with psychosocial interventions in the general medical care settings we visited, either at primary or more specialized levels. Even the Chinese medicine clinics in county and commune hospitals, which appear to manage such problems routinely, did not provide psychosocial exploration or care. Vague, diffuse complaints were interpreted in a somatopsychic frame of reference and treated solely with somatic therapies.

Neither the Chinese-style doctors nor the Western-style physicians we observed inquired into personal, family, or social problems. In two situations in which we asked about social tensions, our hosts became concerned that we might misinterpret what we heard.

Our observations of barefoot doctors in active practice were few, but in no case we saw treated by them was specific attention given to experiential or interpersonal aspects of illness. These impressions fit with research findings from Taiwan that Chinese-style and Western-style physicians do not usually provide psychosocial interventions, whereas sacred folk practitioners do. Because the latter have been prohibited from practicing, one can only wonder where, outside the context of the family, psychological and social aspects of sickness are dealt with. Do the ubiquitous "small groups" in China play such a role? Are these problems recognized and responded to in informal social networks? These questions cannot be answered on the basis of limited information obtained in visits such as ours.

Delivery of psychiatric care in China, especially in rural areas, is based on the restricted meaning given to the terms "mental illness" and "psychiatric disease." These terms are largely limited by the Chinese to denote psychotic disorders, mental retardation, and other severe forms of behavioral pathology. Although concepts of mental illness may differ from place to place and from one practitioner to another, we found that such terms as "mental illness," "schizophrenia," and "psychosis" were used interchangeably. Most inpatients were diagnosed as schizophrenic. A distinction was made between excited and passive schizophrenics, with the passive type predominating.

In one teaching center we were told that excited schizophrenic patients respond to lithium carbonate, supporting our hypothesis that many of these complaints would probably be diagnosed as bipolar depression in Western countries. Manic-depressive disorder, we were told repeatedly, is infrequently diagnosed, and depression is also rarely seen. The fact that most depression is manifested as somatic complaints by patients means that few cases are identified or referred to psychiatrists by other health personnel. Other common inpatient disorders included primarily organic disorders such as senile psychosis and arteriosclerotic disease.

The psychiatric outpatient departments in the hospitals we visited were also primarily directed toward managing schizophrenic patients. Psychiatrists in the #2 Teaching Hospital of the Hunan Medical College, however, told us that as many as half their outpatients were neurotics, predominantly patients with neurasthenia, but there were also some hysterics and obsessive neurotics. Diagnoses such as anxiety neurosis, phobia, hypochrondiasis, and reactive depression were rarely made. In the neurology outpatient service of the Zhongshan Medical College, we were told that neurasthenia was very common.

Treatment in Rural Areas

In theory, the treatment of mental illness in China is organized in tiers, akin to the general organization of medical care. The lowest level is the barefoot doctor in the production brigade, who may identify patients in need of care and assist in administering medication for patients in the brigade. The second level is the commune hospital, which may treat schizophrenic patients as in-patients for as long as 3 months if they are not so agitated that they disrupt the work of the hospital. Patients who do not improve sufficiently to return to their homes may be sent to a psychiatric hospital that may provide short-term care for up to 6 months or long-term care for several years, depending on the locale and facilities available. Some chronically ill patients who cannot return to the community may spend long periods in large chronic disease institutions ("sanitoria"), associated with large factories and State industries, which treat both the mentally ill and other chronic patients. We were told these sanitoria do not keep patients for decades, although several years of care may be provided. Many chronic patients are returned to their brigades and treated in "home beds" by families and barefoot doctors. In urban areas, there are also municipal and provincial mental hospitals, but we could not get a consistent picture of the types of patients treated or average lengths of stay.

It was difficult to get a clear understanding of how schizophrenic patients were managed at the brigade level in the areas we visited. For the most part, the existence of mental illness is not recognized. The concept plays only a small part in rural medical care. Some schizophrenic patients stay in the community in "home beds." As we understood the concept, they get special attention from the barefoot doctor, assisted by staff from commune hospitals and any special psychiatric institutions in the area. Chinese doctors frequently refer to prevention of mental illness. Close questioning revealed that "prevention" means: (1) alerting the family to dangers of suicide; (2) instructing on necessary medication; (3) paying attention to food habits and feeding the patient; and (4) telling family members what to observe and report to health personnel.

Only one of more than a dozen barefoot doctors we interviewed admitted to currently treating patients with mental illness or mental retardation. Most denied that they had encountered any depressed patients, but all had had experience with treating neurasthenia. Our interpreter had had hardly any experience with mental illness during her 2 years as a barefoot doctor in Heilongjiang. Again an interesting question for further research is to what extent these and other health care providers fail to diagnose depression, hysteria, anxiety neurosis, and other mental illnesses that are common in Chinese communities.

The simplicity of Chinese agriculture and industry, the strong family network, and the tight system of social organization provide considerable flexibility in managing patients in the community. Family members and commune

officials are involved in patient "planning" and cooperate in arriving at work assignments patients can manage. Patients may do more simple tasks and receive help at the workplace in managing daily activities.

Mental illness in China is not a confidential relationship between patient and doctor. It is a social issue involving the home, the workplace, and the production brigade. We were told repeatedly that educational efforts were being made to reduce the stigma of mental illness. We were also told that marriage was possible for schizophrenic patients.

Schizophrenia in rural areas is initially diagnosed in commune and county hospitals. It may be treated for up to 3 months or referred immediately to provincial psychiatric hospitals. Psychiatric care in commune and county hospitals is provided by Western-style physicians with general medical training. These hospitals usually do not have psychiatrists. But at the county and prefecture level, general hospitals may have Western-style physicians who have had special courses in the diagnosis and treatment of mental illness, such as those provided by the department of psychiatry of the Hunan Medical School. Psychiatric personnel from specialty hospitals may also visit general hospitals in rural areas as part of special mobile health teams to provide consultation and instruction.

Provincial and municipal psychiatric hospitals form part of China's chronic disease hospital system. This system includes tuberculosis and leprosy hospitals. This triad itself suggests that the stigma of mental illness and its isolation from the mainstream of general medical care may help shape China's psychiatric services for the chronically mentally ill, just as it affects psychiatric care throughout Asia. Because we did not observe long-stay hospitals or home bed psychiatric care by barefoot doctors, we can report little about how chronic mental illness is managed.

Miyun County Hospital

Our visits and interviews formed our general observations. At this hospital, in the far suburbs of Beijing, we were told that when psychotic patients are first seen in the outpatient clinic, they are evaluated and usually sedated with a neuroleptic drug by the Western-style doctors in the internal medicine clinic. They are then sent immediately to a "stability hospital" in Beijing. Because the county hospital is relatively close to a large municipal psychiatric hospital, it does not treat patients with mental illness but refers them directly to the specialty hospital. At the Chenkequan Brigade in the same county, the barefoot doctor's medical kit contains injectable chlorpromazine, which we were informed is used occasionally to treat chronic schizophrenic patients who are being kept in their production teams and treated at the brigade health station or in home beds.

Dazhai Commune Hospital

We were told that over the past year only two or three people with psychoses were treated as inpatients at this hospital, which serves 11,600 people. None was referred to the provincial psychiatric hospital in the county. Here as elsewhere we were informed by local cadres that the few cases of mental illness show that mental illness is caused by the bad social conditions that especially affected women in China before 1949.

By vastly improving social conditions, China has removed the root cause of mental illness, we were told. The director of the hospital went on to say that depression (*yu-bing*), which they rarely see, is a psychotic disorder and therefore a mental illness, whereas minor "psychological problems" (*xinli wenti*), which are fairly common in their outpatient clinic, are caused by neurasthenia or "insomnia" and are not mental illness (*jingshen bing*).

First Teaching Hospital, Hunan Provincial College of Chinese Traditional Medicine

Like commune and county hospitals, the traditional Chinese medicine hospitals we visited refer patients to psychiatric hospitals. The staff of the First Teaching Hospital reported that psychotic patients seen in the outpatient clinic are not treated as inpatients but are referred immediately. Like their Western-style colleagues, these traditional doctors were familiar with the term "hysteria," but claimed to encounter patients with this problem only rarely. They regarded it, like neurasthenia, as a physical, not a mental, illness. Such cases would receive outpatient treatment with herbs and acupuncture.

Sanyang Commune Hospital, Taoyuan County, Hunan

This hospital, which serves a commune population of 22,900, sees three or four cases of psychosis (all schizophrenics) each year. At the time of our visit two young men with schizophrenia who were being treated in the hospital were on home leave. Three months before our visit both had been hospitalized for psychosis for the first time. Their families had brought them to the hospital because of delusional thinking. They had not consulted barefoot doctors first. The young men had not exhibited violent behavior, nor were they paranoid. But both were diagnosed as suffering from "excited schizophrenia" and were treated with chlorpromazine, trifluprom azine, and traditional herbal medicines. If their symptoms were controlled they would return to live with their families and be encouraged to continue farming. If they did not improve, they would be referred to the provincial psychiatric hospital. Their families were said to want them back.

Taoyuan County People's Hospital

Cases of psychosis referred from commune hospitals to the provincial psychiatric hospital pass through this county hospital, where the diagnosis is confirmed. Excited psychiatric patients who are difficult to control are sent directly to the psychiatric hospital. Patients without pathological excitement are kept for 2 or 3 days to reassess the diagnoses given by the commune hospitals, and a decision is then made concerning referral. Like several commune hospitals we visited, the county hospital may treat nondisruptive psychotic patients for up to 3 months. If no improvement occurs by then, patients are referred to the psychiatric hospital. Each year the hospital treats three or four psychotic patients, but we were told that most cases of psychosis are treated in the 60 commune hospitals in this county of 880,000 people. Patients at the psychiatric hospital are returned to their families eventually, even if there is only partial improvement. However, if there is no change in their symptoms and behavior they may remain at the psychiatric hospital.

Chuanshan Central Hospital, Guilin

Only two patients with psychosis had been seen during the past year in this commune of 18,600 people on the outskirts of Guilin, even though this hospital provides technical support to three commune hospitals. One patient whose psychosis was described to us as severe was referred to the provincial psychiatric hospital. The other patient was treated in the internal medicine clinic with Western antipsychotic drugs. In all of Guilin there are no psychiatrists, and the provincial psychiatric hospital is a considerable distance away.

Taoxu Commune Hospital, Heng County, Guangxi

In the Taoxu Commune Hospital, which serves a commune population of 56,923, our hosts reported that no cases of mental illness were seen in 1976 or 1977. (In 1977 there were 43,266 outpatient clinic visits and 523 inpatients.) Of the eight patients we interviewed in the outpatient clinic, however, one impressed one of us as a case of somatization[1] due to Briquet's syndrome

[1] Because we often had limited interviews, did not have detailed personal and family histories or psychological test results, and were not in a position to conduct further medical tests, our impressions could not be substantiated in most cases. Readers, therefore, should regard these impressions as unsupported and tentative. Because we did not make the diagnosis of somatization if there was evidence of specific organic disease—and we selected only those cases with chronic or subacute complaints that had undergone medical workups that had not turned up positive findings—we believe that our overall assessment conservatively estimates the prevalence of somatization in our sample. But our diagnosis of individual cases could well be off the mark.

(hysteria). Heng County Hospital itself, which has 145 beds, has 150,000 outpatient visits and 4,000 inpatients annually and serves a population of 780,000, had treated only three cases of mental illness in the previous 3 years. These included one patient with schizophrenia, another with depression, and a third with organic psychosis following a head injury. Because the World Health Organization (WHO) reports the prevalence rate of schizophrenia for a variety of Western and non-Western societies as ranging from 2 to 10 per 1,000 [16], including Chinese populations in Taiwan, one would expect a much greater number of schizophrenic patients to be seen at the Heng County Hospital and similar institutions. The low reported prevalence of mental illness in China deserves careful study. In the absence of population-based surveys, hospital-based data like these may lead to gross underassessment of the actual magnitude of schizophrenia and other psychiatric disorders. This in turn may underrate the need for rural psychiatric services. (Of the 16 patients we interviewed in the outpatient clinic at this hospital, at least one and possibly a second impressed Dr. Kleinman as cases of somatization of psychiatric disorder.)

Treatment in Urban Areas

Background Information

Most of what we learned about psychiatric theories and practices in China came from meetings with psychiatrists and neurologists at the hospitals in Beijing, Changsha, and Guangzhou, so we will describe these discussions in detail. First, however, some relevant background information needs to be reviewed.

Our trip to China occurred during a time of great political change. This partly manifested itself in somewhat more freedom to explore psychiatric and psychosocial issues than previous groups of visitors had experienced. But since our mandate was to study rural health care, psychiatric services were viewed by our hosts as a somewhat marginal interest, so we did not spend as much time studying psychiatric care as we would have liked.

While we were in China, however, psychology as a discipline was being rehabilitated. The June 26, 1978, issue of *Guangming Ribao* (*Guangming Daily*, the leading newspaper for intellectuals) reported the findings of a national psychological convention held in Hengzhou May 8-15, 1978. This convention asserted the importance of psychology and detailed part of the content of an 8-year plan for national psychological research. The "Gang of Four" (a group supposedly led by Jiang Qing, Chairman Mao's wife) was blamed for the "mutilation" of professional psychology. Chairman Hua Guofeng was praised for giving the profession "new life" so that it could go on to make important teaching and research contributions. Developmental psychology was discussed at the convention, and the nature and purposes of

this discipline were described to the paper's readers in terms educated laymen could understand. Its practical educational significance received particular stress. After a view of the historical development of psychological research, beginning with the work of William Wundt, readers of the article were informed that the conference participants were unanimous in agreeing to "actively promote teaching and research work in psychology" so as to contribute to the four modernizations campaign and to the strengthening of our "grand socialist nation."

Subsequent issues of *Guangming Ribao* have introduced other aspects of psychology to readers. Although this dramatic change in the fortunes of psychology occurred while we were in China, we saw little evidence of it. It is, however, reasonable to surmise that this development and many related changes portend significant change in the role and functions of psychiatry in China. Thus special caution should be attached to this concluding section of the chapter, because what we learned may be more representative of the past than predictive of the future.

Number Three Affiliated Hospital, Beijing Medical College

Patient care. The first psychiatric department we visited was at the #3 Affiliated Hospital of Beijing Medical College. It has 24 doctors and 15 nurses and maintains 100 beds, divided into wards for men and women. We visited both the inpatient and outpatient facilities, where we interviewed several inpatients and observed their treatment. We spent about 3 hours talking with the deputy head of the department and the attending psychiatrist. The outpatient clinic has approximately 100 patient visits a day. Most suffer from psychosis, we were told. The next largest group suffers from neurasthenia and other neuroses. (Unlike their medical colleagues in the county and commune hospitals we visited, the psychiatrists in this hospital labeled neurasthenia as a neurosis.) Most of those with psychoses are discharged patients who return once every 2-4 weeks for followup care. We were told that, whereas most neurotic patients are self-referrals, most psychotics are brought to the clinic (occasionally against their will) by family or co-workers. Neurotic patients usually are not released from work obligations; psychotic patients are released routinely while they are actively psychotic. Treatment of both neurotic and psychotic patients may involve family, neighbors, and co-workers, who help to resolve practical problems involving the patients. At #3 Hospital somatization is recognized as a common manifestation of both disorders, but is frequently not recognized as such by local doctors.

Psychotic patients are often admitted to an inpatient ward when they enter the clinic. They are treated first with antipsychotic medications (e.g., chlorpromazine or haloperidol) along with milieu therapy and small group discussions (having both political and therapeutic functions), participation in

structured patient activities (exercises, athletic games, singing), occupational therapy, and so forth. If patients do not respond, insulin shock therapy is used. Approximately 16 percent of all inpatients were estimated to receive insulin shock therapy, usually administered in such a way as not to produce coma. Electroconvulsive therapy (ECT) is not used in this department because its early use was associated with untoward effects that frightened patients and families. This was reported as a local problem, because the deputy head of the department remarked that ECT is used in other psychiatric hospitals. Long-acting injectable phenothiazines are increasingly being used to treat chronic schizophrenia.

All patients who attend the psychiatric clinic pay a registration fee of 10 cents. Some pay only this fee; most pay more. If the patient's visit is not paid for from cooperative insurance system funds, the patient may have to pay 2 or 3 yuan ($1.20-$1.80) for medication. People who visit the clinic and are not part of a cooperative insurance fund may be covered by a certificate saying they cannot pay, in which case the Government pays the hospital. Inpatients pay 1 yuan a day as a basic fee for room, but this does not include medication or food. Patients with severe chronic mental disorders that do not respond to treatment in this hospital are sent to the "stability hospital" (the municipal psychiatric hospital) for long-term care.

Research and teaching. Besides patient care, the department of psychiatry has research and teaching activities. Although there is no active research program now, plans call for mass surveys and biochemical studies of the mechanisms of schizophrenia. During the current 5-year medical school curriculum, 60 hours of neurology and psychiatry lectures are given. No clinical training in psychiatry is provided to medical students, but there is a 3-year postgraduate training program for psychiatrists.

We were told that psychoanalytic approaches had no objective basis and put too much emphasis on sex. Instead, a dialectical materialist approach is supported, using the doctor-patient relationship to bring the initiatives of the patient into full play. We were told that the patient's acceptance of the therapy depends on the doctor's outlook and on the quality of the doctor-patient relationship. In such relationships, patients are taught to take an optimistic view of their illness and treatment. For example, therapists teach schizophrenic patients who are frightened by the seriousness of their disorder that it can be cured and that a good attitude can lead to a better outcome. Patients with neurasthenia are told that their insomnia and anxiety are caused by "a functional disorder of the brain nerves." Patients are told their doctor will be better able to cure them if they can tell the doctor about the "mental factors" contributing to their disorder. For example, if the patient is a daughter-in-law who is having regular conflicts with her mother-in-law, the patient is told that such conflicts are "normal" and widespread. She must "face up to them and

solve them." These conflicts can be examined in terms of their concrete contradictions, which in turn can be analyzed from a dialectical materialist position. Then the patient can take a "correct attitude" toward her mother-in-law. If the women cannot solve their problems themselves, despite this encouragement, neighbors, family members, and friends may be asked to help.

The staff claims not to have problems with confidentiality. We were told that "mental illness is a public problem." Hence it is important to share information about the patient's problem with family, neighbors, and co-workers. But some limitations are placed on such communication, and information is shared with others primarily when it serves a therapeutic purpose.

Sexual neurosis (common in Taiwan, Hong Kong, and in overseas Chinese communities), homosexuality, and alcoholism (uncommon in other Chinese populations) are not seen. Suicide also is reported as uncommon. Though the staff recognizes that depression is frequently masked by somatic symptoms, there are not many cases of somatized depression. Most of these are presumably treated in medical clinics. There is little experience with antidepressant drugs. Consultation-liaison service is limited to consultation on psychotic patients who are on other services in their hospital. They do not consult on questions concerning psychosocial concomitants of physical disease or death counseling. We observed three female patients in their early twenties receiving insulin shock therapy for catatonia. We also met one middle-aged man who had developed drug dependence on a tranquilizer.

The doctors were looking forward to what they said would be the first publication of the *Journal of the Chinese Society of Neurology and Psychiatry* since the Cultural Revolution. The society, they reported, was debating whether to become active again.

Epidemiological data. The only psychiatric epidemiological data we saw in China were at this hospital. This psychiatric service was founded in 1951 as the center for clinical psychiatric teaching and care at Beijing Medical College. The department works closely with at least one suburban county of Beijing where they periodically survey the number and types of patients with mental illness. The staff consults with and supervises doctors in commune hospitals and barefoot doctors who care for the mentally ill, gives specialty treatment to selected patients, and teaches prevention.

In this suburban county they have conducted mass surveys in different communes yearly since 1974.[2] Local barefoot doctors are trained to identify mental disorders. Then, based on their knowledge of the local population, the barefoot doctors decide which cases they "presume" to be suffering from

[2]It was not clear to us whether this data collection involved doctors in commune hospitals as well as barefoot doctors. Lu [14], reporting on these surveys, indicates that the initial identification of cases was made by the barefoot doctor.

mental illness. (There have been no communitywide surveys in which psychiatrists or physicians conduct household surveys.) Each "presumed case" of mental illness is reevaluated by a psychiatrist from this department to determine the "cases" we list in table 1.

The doctors cautioned us that these crude statistics should not be regarded as having true epidemiological significance. We agree. However, they are the only survey data we obtained during our visit in spite of repeated attempts to discover what was known about the prevalence of mental illness at national, provincial, county, and commune levels. Therefore we present the data, recognizing their serious limitations. We were unable to clarify questions raised by the findings, such as why "total cases treated" are not reported for certain communes, or the significance of absent numerators under "epilepsy," "mental retardation," "other psychoses," and "schizophrenic patients." Nor were we able to discover why the number of local barefoot doctors or numbers of reported cases varied so much for some of the communes. We noted that the number of schizophrenic patients in each commune was much higher than the anecdotal material reported to us in rural communes. Even so, these numbers are still very low when compared to WHO estimates based on a number of international surveys. We expected this underestimation because of the relatively casual enumeration of cases, without scientific sampling or house-to-house surveys.

Wall charts illustrated the department's suburban catchment area of about 190,000 people. Patients in home beds in 1977 were classified in terms of clinical improvement on an A-to-D system. "A" represented clinical recovery; "D" no effect. Of the 232 schizophrenic patients, 102 were classified as clinically recovered—an impressive statistic for a condition so difficult to treat. Our further questions revealed that patients who have a remission of symptoms for 1 month are classified as clinically recovered. They stay in the "A" group even if their symptoms recur. This is less impressive, and it would be a disservice to report such superficial findings uncritically. The doctors at the hospital seemed sincere. We certainly found no evidence of a desire to mislead us. If one persisted in asking the right questions, issues could be clarified, but this is difficult under the hurried conditions of a delegation visit.

Number 2 Teaching Hospital, Hunan Provincial Medical College, Changsha

The second psychiatric facility we visited was the department of mental disease of the #2 Teaching Hospital, which is the only psychiatric unit in the Hunan Provincial Medical College and has the only academic psychiatry faculty in the province. One of the senior staff was trained in psychiatry at Beijing Union Medical College, and he himself trained his two younger colleagues.

The department has 20 doctors, including postgraduate trainees. It has 65 inpatient beds; there are 100 to 150 outpatients a day. The department trains

TABLE 1. Survey of Certain Types of Mental Illness[a] in One Suburban County of Beijing

Commune	Population	No. of Brigades	Date of Survey	No. of Local Barefoot Doctors	Ratio of Cases Treated in Hospitals to Those in Home Beds[b]				
					Total Cases	Schizophrenic Patients	Epilepsy	Mental Retardation	Other Psychoses[c]
1	14,807	8	07/10/74	24	163:	: 24	: 15	: 9	: 15
2	13,514	10	03/24/75	11	128: 52	27: 23	41: 15	49: 6	11: 8
3	18,158	4	07/14/75	71	206:113	59: 54	50: 25	76: 13	21: 21
4	43,129	14	10/20/75	24	335:137	61: 36	98: 37	141: 35	35: 29
5	15,230	8	02/23/76	12	122: 82	28: 25	39: 16	42: 36	13: 5
6	19,481	7	04/19/76	12	: 56	-1: 16[d]	: 17	: 17	: 6
7	8,396	7	07/19/76	12	60: 29	: 6	: 14	: 8	: 1
8	12,837	9	...[e]	10	80: 42	26: 24	18: 6	18: 9	18: 3
9	1,978	4	...	3	: 33	: 18	: 5	: 2	: 8
10	12,999	10	...	24	83: 45	19: 19	36: 25	18:	10: 1
11	17,694	...	...	36	85: 57	23: 19	24: 23	28: 11	10: 4
12[e]	...	...	...	...	...	...	...	...	...
Total	189,915	...	...	247	:787	:292	:221	:159	:115

[a]This survey was restricted to patients suffering from psychoses, epilepsy, and mental retardation. Cases of neurosis and other psychiatric problems are not included.

[b]"Home beds" are defined as patients treated in their own homes by visiting nurses and barefoot doctors working with families.

[c]"Other psychoses" include reactive (psychogenic or atypical) psychoses and manic-depressive psychosis.

[d]We did not learn what "-1" meant.

[e]Data not recorded.

psychiatrists for specialty and general hospitals in the province. Until recently, the postgraduate training program in psychiatry had been reduced to a single year's course as a direct result of policy mandated during the Cultural Revolution. The senior staff feel that a longer program will produce better-trained psychiatrists and hesitate to call the graduates of their 1-year course "psychiatrists." Of the 300 to 400 "psychiatrists" estimated as practicing in Hunan Province, most had received their training in this department. The input into the general didactic and clinical clerkship program for medical students is limited to a brief review of schizophrenia and a few other psychiatric disorders and their treatment. The 1-year postgraduate course, which will be expanded to several years, includes lecture-demonstration series on biological aspects of psychiatry, descriptive psychiatry, psychopharmacology, and psychotherapy. Each trainee engages in supervised clinical work with inpatients and outpatients, including experience in what they called "individual psychotherapy."

A psychiatric research group was organized in 1958, but all research stopped during the Cultural Revolution. Only in the last year have clinical studies been resumed, after a hiatus of about a decade. At present 12 of the 65 inpatient beds are devoted to the experimental use of various traditional Chinese medicines, particularly in the treatment of psychoses. The staff believe that several indigenous medicines may be effective sedatives and antianxiety agents.

All the patients come from Hunan Province. Selected patients are treated for 1 month with indigenous medicines. If there is no improvement, Western-style medication is tried. Research to be initiated in several other areas will include standardizing and validating behavioral assessment scales and psychometric tests in order to conduct rigorous clinical studies.

Sixty to seventy percent of inpatients have been diagnosed as schizophrenic. It is estimated that one-fifth have "excited" schizophrenia, while four-fifths have depressed or "retarded" schizophrenia. Approximately 30 percent suffer from various types of organized brain syndromes. There are few patients with manic-depressive psychosis, psychotic depression, or psychogenic psychosis. At least half the patients in the outpatient clinic suffer from neuroses. About 80 percent are diagnosed as neurasthenic; more than 10 percent have hysteria. Only a few are diagnosed as suffering from obsessive-compulsive neurosis, phobic neurosis, or anxiety neurosis.

There are virtually no cases of homosexuality, alcoholism, or drug abuse. One of the staff noted that although they see few cases of reactive depression, vegetative symptoms of depression are common among neurasthenic patients; this may reflect "masked depression." Most of the other patients in the outpatient clinic suffer from schizophrenia, diagnosed as a chronic psychosis associated with thought disorder, apathy, ambivalence and "loss of will," and obsessive symptoms.

In addition to administering antipsychotic medications similar to those used in the United States, the staff treat patients with lithium, hypnotics, and

sedatives. Antidepressive medications, although well publicized, were infrequently used in the institutions we visited. (We could not determine whether this reflected unavailability because of economic reasons or other factors.)

Patients can stay on the inpatient service of this department for up to 3 months. They are then referred to the provincial psychiatric hospital for up to 6 months or to district hospitals, where they may stay several years. Most chronic patients are sent home after that time and treated as outpatients, but some may remain for years in sanatoria associated with factories and large State enterprises. This department participates in an informal "psychiatric network," including specialty and district hospitals. In Hunan Province there are 10 "district hospitals," which are at the prefectural level between provincial and county hospitals. Each has a psychiatric service and treats inpatients for long periods. Changsha, the capital of the province, has a municipal psychiatric hospital with 200 beds and a provincial psychiatric hospital with more than 300 beds.

The staff admitted that mental illness was still heavily stigmatized in China. However, they noted that ongoing health education campaigns involving barefoot doctors and other production brigade members are aimed at convincing peasants "not to look down on such patients." They point out to patients' families that because schizophrenia occurs throughout the entire world and has a biological cause it is like any other disease.

At this hospital, they rarely see sexual neurosis or the culture-bound disorders well described for overseas Chinese communities. But they admitted that "perhaps our patients do not find it easy to talk to us about such things." Patients who have concerns about masturbation are told that "though it is wrong and they should try to stop, if they cannot stop it will not hurt them."

The staff provides some psychotherapy within the limits of 10- to 15-minute outpatient interviews, emphasizing "the therapeutic relationship," "heart-to-heart talks," practical advice, and moral exhortation based on Maoist values. The psychiatrists expressed deep frustration with the effects of the Cultural Revolution, which they blamed for bringing their academic activities to a halt for a decade. Although they now receive about 20 foreign psychiatric journals, for a time during and after the Cultural Revolution no outside publications were permitted. Thus they feel that psychiatrists throughout China need to catch up with recent technical developments in the West, raise appreciably the level of clinical work, and initiate relevant research. Significantly, they look toward the West as a model.

The staff were acquainted with developments in biological psychiatry and were particularly interested in competing ideas about the effects of drugs on brain processes, particularly the dopamine hypothesis. They believed that schizophrenia is a genetic vulnerability triggered by social and psychological factors, but were less acquainted with findings in social epidemiology and were unaware of studies linking social class to the prevalence of schizophrenia or sex

to depression. They had the impression that women were more frequent psychiatric outpatients but had no supporting data.

Zhongshan Medical College, Guangzhou

The main campus of Zhongshan Medical College has no psychiatry clinic. The psychiatry department is located at the large provincial psychiatric hospital, which we did not visit. Instead we visited the school's neurology outpatient clinic with the head of the department of neurology, and spoke with her and the head of the neurology clinic. In this medical school curriculum 24 hours of classroom lectures are devoted to general psychiatric topics such as major psychiatric disorders, their treatment, and prevention. In addition, there is a clinical clerkship in psychiatry for 26 hours.

The department of neurology has six senior neurologists and eight junior staff members and trainees. Two of the senior staff are neurologists with special training in psychiatry. Each day in their outpatient clinic they see 80 to 100 patients. Roughly 10 percent have acute illness; the rest, chronic illness. Approximately 20 percent of these patients are visiting the clinic for the first time. More than half are thought to be suffering from neuroses. Each day at least 10 cases are diagnosed as neurasthenia; each month 50 to 60 cases of hysteria are diagnosed.

The staff recognizes very few cases of depression. They do not think neurasthenia patients suffer "masked depression." (Neurasthenia was viewed as the result of "decreased cerebral function," primarily affecting "brain workers" under a heavy load of intellectual work and associated with symptoms such as headaches, insomnia, dizziness, and memory problems in the absence of "organic disease.") There are one or two schizophrenic patients each day. Unlike the Hunan Medical College, where many cases of epilepsy are treated in the psychiatry clinic, the neurology clinic at Zhongshan Medical College sees most cases of epilepsy. They also treat a wide range of other neurological problems.

Severe cases of schizophrenia are referred to the provincial psychiatric hospital in Guangzhou, while mild cases are treated in the clinic. Associated with the provincial psychiatric hospital is a special 100-bed sanatorium for the care of intractable patients (mostly schizophrenics). Unlike the departments of psychiatry we visited in Changsha and Beijing, this clinic does not use the "excited/depressed or retarded" classification of schizophrenia and does not report a small percentage of paranoid symptoms for schizophrenic patients. Approximately 50 percent of their schizophrenic patients were said to be paranoid.)

Each patient in the clinic is seen for about 15 minutes by a resident, who then presents the patient briefly to one of the attending neurologists. No

antidepressant medications are used. Phobias are treated with talk therapy, sedatives, and chlorpromazine. Acupuncture is used to treat hysteria. Intravenous calcium bromide or calcium chloride and, occasionally, ether are used to treat the symptoms of "acute hysterical attacks."

We did not review the textbook of psychiatry written by the faculty (each department of psychiatry we visited had compiled its own textbook). The school's textbook of neurology contained virtually no information on psychiatry, except for psychiatric problems associated with central nervous system disorders like trauma and tumors. The textbook of internal medicine, which contained more than 800 pages, had 36 pages devoted to neuroses, including neurasthenia, hysteria, and immature personality. Depression was discussed in a single page.

The library catalog had 70-100 entries on psychiatric books. Most had been published prior to 1949. Only a few textbooks were listed with later publication dates. There was no listing for Freud under psychology or psychiatry. The only psychiatric journals we saw were the *Journal of Nervous and Mental Disease*, *Acta Scandinavica Psychiatrica*, and *Excerpta Psychiatrica*. The psychiatry staffs in Changsha and Beijing received the *American Journal of Psychiatry* and *The Archives of General Psychiatry*, but these journals were not in the Zhongshan library. The *Journal of Psychiatric Excerpts* from Japan contained brief abstracts of papers from Western psychiatric literature. About three-fourths of the citations were biologically oriented, and most of the rest had a social or community psychiatry orientation. The periodical shelves, on the other hand, displayed a great many Western and Chinese journals of internal medicine.

Conclusions

We were able to observe only limited aspects of the treatment of mental illness in this vast country. Although we had greater access than previous visitors to some aspects of the system, we were able to learn almost nothing about how mental illness is identified, conceptualized, and dealt with at the family, team, and production brigade levels. We had no opportunity to explore the way social controls in the primary group contribute to the containment of symptoms and social disruption or how these controls affect pathways into treatment.

In considering the epidemiology of mental illness in China, it is essential to differentiate between incidence, prevalence, and help-seeking, and to apply the same rigorous research criteria for case finding used by the World Health Organization in other countries. It would be worth investigating whether the incidence of mental illness is lower in China than that among other Chinese living groups and, if so, the reasons for such a difference. The incidence of

mental illness (i.e., new cases that develop during a specified interval) may be the same in China as elsewhere, but not recognized because of cultural patterns of illness expression and illness behavior, because family members and other kin may avoid such definitions, because agricultural life contains deviance, or because a tight-knit social system and strong expectancies minimize the most aggressive and bizarre manifestations of psychotic behavior. Barefoot doctors and most doctors at the commune level are not trained to notice anything but the most blatant and obvious pathology. If the manifestations of psychosis are masked or restrained because of social conditions, they may not be recognized. This inattention is reinforced by a national health policy that gives mental illness a low priority.

Even if the incidence of mental illness in China is no different than elsewhere, its prevalence may be lower. The Chinese have a strong family and social system, a vital sense of determination and purpose, and a pronounced sense of interdependence. Their system offers a variety of economic and social supports, and the Chinese are pragmatically ingenious in social management (despite their rejection of social factors as significant causes of mental illness). It is therefore possible that the course of illness in rural China varies from that in other Chinese populations. If available supports and controls work to shorten the acute course of mental illness, the prevalence rate may indeed be lower. Rural China offers a fascinating laboratory in which to examine the interaction between psychobiological factors and social organization.

Finally, our discussion of the organization of mental health services and the relationships between psychiatric and general medical care services reveals the fragmentation of our knowledge. Many of the relevant reactions and definitions we would like to understand occur in the production teams and communes before care is provided, so we have almost no information as to what actually takes place. We have no notion of how many people in the community who can benefit from existing knowledge and interventions are never defined as mentally ill. Moreover, we have only the vaguest notions of mental health care in the mainstream of mental health institutions in China, although we have some sense of current thinking in the teaching hospitals.

Perhaps most fascinating is the discrepancy between the "social psychiatric aspects" of Chinese life and the treatment of mental disorder and the insistence by Chinese psychiatric specialists that psychiatry is a biological discipline. It remains to be seen to what extent this changes with greater academic freedom and contact with the outside. The fact is that despite China's ingenuity in manipulating social structure, the practice of clinical medicine is bereft of concern for the impact of familial or psychosocial events on the occurrence or course of illness. This duality requires further examination.

In sum, the questions are many; the research agenda is large. We hope our colleagues who have the opportunity to visit China can build on these observations and our understanding of mental disorders.

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16

Summary and Conclusions

George I. Lythcott

Achievements

Yin di zhi yi means "make the best use of your conditions." Clearly China has done that in developing a system of rural health care that has chalked up impressive achievements. Its infant mortality rate compares with that of the United States. Children have been immunized against vaccine-preventable diseases. Teenage pregnancy and venereal diseases are all but eliminated. Parasitic plagues have been brought to heel, and flies are under control. Safe drinking water and sanitary facilities serve every rural village.

For a poor nation, lacking in technology, these are momentous advances, all the more so because the task that has confronted contemporary China is formidable. With nearly a quarter of the Earth's people spread over the world's third largest land mass, China's problem is awesome. Yet somehow, China's rural health system reaches every village and provides its vast peasant masses with a level of health care that other nations of the Third World as yet can only envy.

All this has been accomplished in less than 30 years. Given the magnitude of the need, the immense logistics, and the time period, China's health care system is unique in its enormous achievement in enhancing the quality of individual lives.

One of the major assets of China's rural health service is the effectiveness and breadth of its preventive work. In China, prevention is more than rhetoric. It is the prime focus; it is effective and inexpensive. A major reason for the increase in life expectancy and the drop in infant and child mortality is the vigor of China's antiepidemic services. Communicable diseases are in retreat. Possibly the best indication of this is the emergence of chronic degenerative disease as a major cause of death in China today.

Yet China's victory is far from total. China shares many of the difficult communicable disease problems faced by the United States, particularly hepatitis and influenza. Labor hygiene is still in its infancy. Furthermore, China needs to do much more in standardizing its records and statistics, a deficiency we found vexing on more than one occasion.

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The army of barefoot doctors evokes a mixture of reactions. Beyond doubt, they are dedicated and hard-working. China could not hope to bring primary health care to its rural masses without them. Yet by Western standards, these practitioners leave much to be desired. With training measured in months rather than years, they often appear to be beyond their depth. Observation led us to conclude that they can and do miss diagnoses. We were appalled to discover that they evidently dispense injectable chlorpromazine, a drug with risks and rewards that should be used only by those with more pharmacologic understanding than the barefoot doctors displayed to us. Perhaps inadequacies such as this are part of the price China must pay for a choice it could not escape: to provide better care to fewer people or care of lesser caliber to masses of people scattered over a vast subcontinental expanse. Wisely, we feel, China has chosen the latter.

Organization

To achieve its goals in rural health care, China has had to concentrate on masterful organization. Its grand design is to formulate policy centrally but allow that policy to be broadly interpreted in the provinces and villages. This is the strength of China's system. Because of it, localities have been able to develop imaginative programs that are showcased by the National Government so other localities can adopt them. China's health care system is directed, top to bottom, by its political apparatus. Elected party officials and their appointees call the turn administratively at each level. Where strictly clinical decisions are at stake, this idea is inverted, with patients being referred upward to higher levels of medical expertise when their cases cannot be managed adequately at the lower level.

There are three tiers of advancing medical organization. At the grassroots level is the production brigade health station, manned by one or two barefoot doctors and health aides. What they cannot handle is referred to the commune hospital, and what the commune hospital cannot handle is referred to the county or provincial hospital or one of the specialty hospitals. This referral system is not always followed, however, since a sick person who lives closer to a county hospital may go there first for treatment.

Financing

China's health care is financed through three separate systems. The first two, for industrial workers and government employees, are nearly cost-free to employees. Benefits are similar, except that dependents of government workers are not covered. The third system covers rural health care and is financed from the production revenues of each of the 50,000 communes in the countryside.

This self-financing system is called cooperative medical service. Benefits and coverage vary among communes and depend on the productivity of the commune's agricultural effort. Nonetheless, the National Government helps to subsidize the cooperative medical service by training doctors, nurses, and other health workers and by providing vaccines and contraceptives. The salaries of physicians and nurses are extremely modest by Western standards. This, together with the low pay of barefoot doctors, keeps overall expenses exceedingly low. At a cost of less than $20 per person per year, China provides basic protection from the cost of illness for its people.

China's financing of health care is not, however, without problems. Its industrial and governmental health insurance systems do not meet Western standards of coverage. And in the countryside, many nonproductive workers and retired farmers have no insured coverage. Nor do sick workers who are unable to work receive sick pay, which may well influence people to refrain from seeking care when they need it.

China's Blend of Two Concepts

Medicine in China is a blend of the old and traditional with the new and scientific. Chinese traditional medicine still has deep roots. It has been practiced for millenia, and many Chinese still prefer it. Chairman Mao did not fight this loyalty but encouraged it, saying that China's health care should combine the best of traditional and Western medical concepts. This "walking on two legs," as he characterized it, has puzzling aspects. Practitioners of traditional medicine seem to accept the biomedical orientation of Western medicine, yet they often employ techniques and approaches that clearly ignore it. This bothers them not in the least; they justify it by saying that they will employ whatever approach works.

Interestingly enough, a somewhat similar attitude manifests itself among those in American medicine who have become proponents of holistic health techniques. The two attitudes may indeed have common roots, and an exploration of the two approaches might well make for an intriguing collaborative investigation.

Birth Planning

The success of birth planning, an integral part of China's rural health system, commends it to other nations of the Third World struggling to control their population growth.

China's birth planning organization, like its health care system, is directed from the top but managed from the bottom. National goals and policies are

established and enunciated from Beijing, but much of the effort and impetus emerge from the village level.

A July 1965 directive from Beijing articulated a national birth planning policy that aimed at reducing fertility. It spelled out three reproductive "norms" for achieving this goal: get married later; space children farther apart; have fewer of them. This policy inevitably was given a slogan: "later, longer, fewer." This objective is carried out by a grassroots organizational effort reaching from the provincial level down to the county level and into every village. Every planned birth worker in a village lives in that village; no outsiders come in to preach birth planning. Village leaders are persuaded of the value of birth planning. Convinced themselves, they lead by work and example, often being the first to undergo a vasectomy or tubal ligation.

Each commune has a planned birth committee, and eligible couples meet with it soon after the lunar new year to work out a community birth plan for the next calendar year. Couples that want to have a baby request a "birth turn," which is granted if the aggregate requests in that commune do not exceed the unit's quota. In practice, there is more latitude than this procedure implies. Many individual tradeoffs and adjustments can be made within the committee's own purview. Some villages may exceed their quota if another village in the same jurisdiction has not attained its quota.

We did not review national population and fertility rates, but we did inspect birth statistics at several hospitals and provinces. What we saw tended to confirm our view that China's birth planning system works. Between 1972 and 1977, for example, Taoyuan County's crude rate declined 52 percent and Guangdong Province's, 35 percent. We were told that only 2 percent of the infants delivered in Beijing Maternity Hospital in the preceding 3 years were the third child of their parents.

Disease Pattern

China's disease pattern reflects a nation in transition. Though still classifiable as an emerging nation, China presents a disease profile and mortality rate that conform to those of developed nations. It has effectively controlled infectious diseases, leaving chronic degenerative diseases to emerge as major health problems. Vaccine-preventable diseases have been brought to heel, due largely to the system of universal immunization clearly in evidence during our visit. Smallpox, we believe, has been eradicated in China. The incidence of vecter-borne diseases like schistosomiasis has been greatly reduced. These campaigns, coupled with determined efforts to improve sanitation conditions, have had their effect.

In contrast to these success stories, we saw evidence that the diseases of modern society have begun to assert dominance. Coronary disease, strokes, and

cancer now rank high as causes of death in China. We observed little obesity, which is a contributor to cardiovascular diseases. However, we did see evidence that China has yet to take cigarette smoking seriously as a health hazard. The easy indulgence of our Chinese medical hosts in the smoking habit suggested that the Chinese have yet to confront the depth of that health problem.

Mental Illness

Chinese health officials evidently do not regard mental illness as a significant public health problem; they give it low priority. Although they say there is little mental illness, officials were unable to provide us with data to support their claim. Mental illness may be one of China's cultural blind spots. Both doctors and patients tend not to see it, even though we observed clear indications of mental problems. The inclination in China is to describe underlying mental illness by physical complaints. Perhaps China's close family life and closely knit village structure mask the more bizarre expressions of psychotic behavior so apparent in Western society. In any case, it was impossible for us even to estimate the real incidence and prevalence of mental illness in China. Our psychiatric expert suspected that they closely approximate those of other developing nations, but evidence will have to await more thorough studies.

The organization and delivery of mental health services in rural China are based on the restricted meaning the Chinese give to terms like "mental illness" and "psychiatric diseases." To them, these terms largely denote psychotic disorders, mental retardation, and severe forms of behavior pathology.

Theoretically, China's mental illness services parallel its three-tier structure for dealing with physical illnesses. Barefoot doctors are supposed to recognize mental patients and refer them to appropriate sources for care. But it was clear to us that these undertrained workers are not equipped for such responsibility. Commune hospitals treat schizophrenic patients for up to 3 months, provided they are not so unruly as to disrupt hospital routines. Patients who fail to improve are sent to a psychiatric hospital for periods ranging from 6 months to a few years. The chronically mentally ill who cannot return to their villages may spend several years in large chronic disease institutions known as sanitoria. The Chinese tell us they do not have institutions for lifelong care of the severely disturbed or retarded.

Summation

Every nation reveals unique strengths and shortcomings in what it attempts to achieve, based on its own mixture of history, politics, and economics. China's rural health care system perfectly illustrates the point. With little treasure or technology, but vast numbers of people scattered over an immense

landscape, China's rural health care system is at the moment uniquely constructed to its need. That system should be judged—if it is to be judged at all—not against any other nation's rural health care, but on a scale that balances China's situation and resources against China's response and achievements. Judged thus, China has achieved a momentous triumph in caring for its vast rural population.

Appendix A

Rural Health Systems Delegation Itinerary

BEIJING

June 7	Discuss itinerary with Chinese Medical Association
June 8	
Morning	Three groups Beijing Children's Hospital Beijing Maternity Hospital Department of Psychiatry, #3 Affiliated Hospital, Beijing Medical College
Afternoon	Beijing Textile Factory #3 Health facilities, school, workers' canteen
June 9	
Morning	Institute of Acupuncture and Moxibustion, Academy of Chinese Traditional Medicine
Afternoon	Visit the Ministry of Health for discussion with Vice Minister Tan Yunhe and staff
June 10	In Miyun County, Beijing Municipality, visit Miyun County Hospital, Antiepidemic Station, Henanzhai Commune Hospital, and Chenkequan Brigade Cooperative Medical Station

DAZHAI

June 12	
Morning	Visit Dazhai Exhibition Center
Afternoon	Visit Dazhai Brigade; Dazhai Commune Hospital
Evening	Discussion with doctors from Dazhai Commune Hospital
June 13	Visit Chaochuang Brigade Cooperative Medical Station, Yanchuang Commune, Xiyang County

XI'AN

June 14	Visit Chang'an Hospital on outskirts of Xi'an
June 15	
Morning	Visit Luancun Commune Hospital, Chang'an County
Afternoon	Visit Xiaoxincun Brigade in Luancun Commune

June 16	
Afternoon	Visit Shaanxi Provincial Antiepidemic Station
Evening	Discussions with Xi'an health personnel on family planning and antiepidemics

CHANGSHA

June 17	Visit the First Teaching Hospital of the Hunan Provincial College of Chinese Traditional Medicine
June 18	In Taoyuan County, Hunan, visit Shenjiagang Brigade Cooperative Medical Station, Macongling Commune; visit Macongling Commune Hospital
June 19	
Morning	Two groups, each visiting different brigade cooperative medical stations in Taoyuan County; also visit the Sanyang Commune Hospital, the Taoyuan County People's Hospital, and the Taoyuan County Hospital of Traditional Medicine
Afternoon	Discussion with health personnel from Taoyuan County
June 20	Two groups Department of Psychiatry, #2 Teaching Hospital, Hunan Provincial Medical College Visit Hunan Provincial Museum; return to hotel for discussions on family planning and antiepidemics

GUILIN

June 22	
Morning	Visit Chuanshan Central Hospital in Guilin suburb
Afternoon	Visit Qixing Brigade Cooperative Medical Station, Chuanshan Commune

GUANGXI ZHUANG AUTONOMOUS REGION

June 24	In Heng County, Guangxi Zhuang Autonomous Region, visit Fuwang and Shangdong Brigade Cooperative Medical Stations; Antischistosomiasis Station and Taoxu Commune Hospital
June 25	Visit the Heng County People's Hospital Discussions in hotel with county health personnel on family planning, antiepidemics
June 26	
Morning	Three groups Nanning Antiepidemic Station Nanning People's Hospital Guangxi Nationalities Institute

GUANGZHOU

June 27	
Morning	Visit Zhongshan Medical College
Afternoon	Discussions in hotel on family planning, antiepidemics, maternal and child health
June 28	In Xinhui County, Guangdong, visit the Xinhui County People's Hospital, Maternal and Child Health Station, and County Hospital of Chinese Traditional Medicine
June 29	Visit the Yanan Commune Hospital, two brigade cooperative medical stations, a fishery brigade, and peasants' homes
June 30	Visit Kweifengshan Labor University

Appendix B

Hosts in China

BEIJING

Hosts in Beijing

Lu Jinchun	Vice President, Chinese Medical Association
Fu Yicheng	Deputy Secretary-General, Chinese Medical Association
Zhao Zhuyan	Leading Member, Beijing Branch, Chinese Medical Association
Lin Chuanjia	Director, Beijing Child Institute, Beijing Children's Hospital
Luo Huochun	Attending Psychiatrist, #3 Affiliated Hospital, Beijing Medical College
Liu Kui	Beijing Antiepidemic Station
Sheng Lin	Deputy Director, Beijing Maternity Hospital

Staff Members Accompanying the Delegation

Zhang Chiao	Leading Member, Section for Foreign Affairs, Chinese Medical Association
Gu Dezhang	Staff member and interpreter, Chinese Medical Association
Chen Min	Staff member and interpreter, Chinese Medical Association

#3 Affiliated Hospital, Beijing Medical College

Hou Yi	Deputy Head, Department of Psychiatry
Luo Huochun	Attending Psychiatrist

Beijing Children's Hospital

Lin Chuanjia	Director, Beijing Child Institute
Feng Lei	Deputy Director, Department of Experimental Research
Wu Ruiping	Deputy Director of Hospital

Beijing Maternity Hospital

Sheng Lin	Deputy Director
Zhang Lingmei	Chief Physician
Kuang Zhao	Physician

Institute of Acupuncture and Moxibustion, Chinese Academy of Traditional Medicine

Liu Wenchuan	Director
Wang Deshen	Head, Department of Acupuncture and Historical Statistics
Wei Rushun	Head, Internal Medicine

Meeting with Vice Minister of Health

Tan Yunhe	Vice Minister
Mr. Chao	Leading Member, Division of Rural Health
Mr. Tu	Bureau of Medical Education and Medical Science
Wang Liancheng	Office of Planned Birth, State Council

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Miyung County (Beijing Suburb)

Li Linde	Director, County Bureau of Public Health
Zhao Shanzhen	Deputy Director, County Hospital
Zeng Zhaomin	Deputy Director, County Hospital
Sheng Jiyuan	Head Nurse, County Hospital
Chen Weiyin	Deputy Director, County Antiepidemic Station
Qiao Liankui	Director, Henanzhai Commune Hospital
Liu Futian	Brigade Leader, Chenkequan Brigade

DAZHAI

Cheng Cong	Member, Xiyang County Revolutionary Committee
Jia Laiheng	Deputy Leader, Dazhai Brigade
Du Xianzhi	Director, Dazhai Commune Hospital
Zhang Manfeng	Gynecologist, Dazhai Commune Hospital
Hu Haihua	Lab Technician, Dazhai Commune Hospital
Zhao Yinyu	Nurse, Dazhai Commune Hospital
Shi Qinchang	Cadre, Dazhai Reception Station
Li Chengxiao	Secretary, Chaochuang Brigade Party Branch
Zhao Guangyun	Barefoot doctor
Zhang Yaochong	Barefoot doctor
Tian Zhonghua	Barefoot doctor

XI'AN

Hosts in Xi'an

Niu Chengshi	Secretary-General, Shaanxi Branch, Chinese Medical Association
Yuan Wenkun	Deputy Director, Chang'an County Hospital
He Pingkui	Deputy Director, Chang'an County Health Bureau
Wang Xinyu	Deputy Director, Shaanxi Provincial Antiepidemic Station
Gao Feng	Staff Member, Shaanxi Chinese Medical Association
Ma Duzhi	Staff Member, Shaanxi Chinese Medical Association

Chang'an County Hospital

Cheng Chenli	Director
Yuan Wenkun	Deputy Director
Hu Hantao	Deputy Director
Chen Fuyi	Chief, OB-GYN
Yang Yuxin	Secretary, Staff Office
Chen Suihua	Chief Nurse
Yu Peikun	Doctor of Traditional Medicine
Li Luying	Chief, Surgery
Chen Xueping	Chief, Internal Medicine and Pediatrics
Xi Meng	Director, Antiepidemic Station

Luancun Commune Hospital, Chang'an County

Cai Chonglai	Director
Bao Shourong	Doctor, Internal Medicine
Yao Shengming	Doctor, Traditional Medicine
Qi Xinxuan	Nurse
Wang Ming	Director, Xi'an Mobile Medical Team
Zhao Hanmin	Antiepidemic Station
Feng Shuqing	Doctor, OB-GYN

Shaanxi Provincial Antiepidemic Station

Wang Xinyu	Deputy Director
Yu Xuewen	Deputy Director
Hui Qicheng	Director, Administrative Office
Ma Zhongmo	Deputy Section Chief
Liu Zhiping	Deputy Section Chief
Jiang Keqian	Doctor
Liu Qingshan	Doctor
Li Tiemin	Doctor
Yan Qingyun	Doctor
Yan Ruoping	Technician

CHANGSHA

Hosts in Changsha

Wang Yuehua	President, Hunan Branch, Chinese Medical Association
Ma Shaoyun	Secretary-General, Hunan Branch Chinese Medical Association; Deputy Director, Hunan Provincial Health Bureau
Tang Fengde	Staff Member, Hunan Chinese Medical Association; Staff Member Hunan Provincial Health Bureau
Yang Wei	Staff Member, Foreign Office, Hunan Provincial Health Bureau
Hu Peiyao	Doctor, Hunan Provincial Maternal and Child Health Center
Liu Ziyi	Doctor, Hunan Provincial College of Chinese Traditional Medicine
Ouyang Yumei	Doctor, Hunan Provincial Antiepidemic Station

Taoyuan County, Hunan

Chueh Haiching	Vice Chairman, Revolutionary Committee
Ching Chingtsai	Director, County Health Bureau
Yang Mingzhen	Staff, County Health Bureau
Yuan Caiyun	Director, County Hospital of Traditional Medicine
Peng Xingshan	Deputy Director, County Hospital of Traditional Medicine
Peng Fuming	Deputy Director, County Hospital of Traditional Medicine
Zhou Songpai	Director, County People's Hospital
Li Chinglan	Deputy Director, County People's Hospital
Ding Wenping	Director, County Antiepidemic Station
Ye Ming	Director, Bacilu Commune Hospital
Huang Linqing	Barefoot doctor, Xinfugao Brigade

#2 Teaching Hospital, Hunan Provincial Medical College, Department of Mental Illness

Ling Youming	Professor
Shen Jijie	Lecturer and Deputy Director
Yang Deshen	Lecturer
Tan Yanfei	Head Nurse, Internal Medicine

GUILIN

Hosts in Guilin

Fang Xuechang	Secretary-General, Guangxi Branch, Chinese Medical Association
Chen Shouyuan	Doctor, Guilin Antiepidemic Station
Yang Chunzhi	Doctor, Internal Medicine, Chuanshan Central Hospital
Lin Liangai	Student interpreter
Dai Shonshang	Student interpreter
Xie Gong	Foreign Office, Guilin
Yang Shikang	Foreign Office, Guilin

Chuanshan Central Hospital (Guilin Suburb)

Liao Chuluen	Director
Yan Santi	Deputy Director
Huang Su.en	Doctor, OB-GYN
Wang Xingchu	Doctor, Pediatrics
Zhou Yaoqun	Chief Nurse

Qixing (7 Star) Brigade, Chuanshan Commune

Chen Yuchang	Leading Member
Wang Yinghua	Leading Member
Huang Mingchen	Barefoot doctor
Huang Yuanchen	Barefoot doctor
Huang Rizhong	Barefoot doctor
Xie Xiaochun	Barefoot doctor
Peng Aihua	Barefoot doctor

GUANGXI ZHUANG AUTONOMOUS REGION

Hosts in Guangxi

Huang Chen	President, Guangxi Branch, Chinese Medical Association
Mai Wenkuei	Deputy Secretary-General, Guangxi Branch, Chinese Medical Association
Liao Yongfu	Staff Member, Guangxi Branch, Chinese Medical Association
Yang Yanfang	Doctor
Chen Yi	Foreign Office, Nanning
Wang Chizhen	Foreign Office, Nanning
Hu Qingfeng	Interpreter
Huang Chichu	Interpreter

Hosts in Heng County, Nanning Prefecture

Huang Shiling	Vice Chairman, Revolutionary Committee
Wu Fuyi	Deputy Director, Revolutionary Committee Office
Wu Chengjiang	Director, County Health Bureau
Ban Huajiang	Deputy Director, County People's Hospital
Song Tianren	Deputy Director, Health Bureau of Nanning Prefecture

Heng County People's Hospital

Huang Yongzong	Director
Ban Huajiang	Deputy Director
Wu Zhongming	Head Nurse

GUANGDONG

Hosts in Guangzhou

Zhang Wenbing	President, Guangdong Branch, Chinese Medical Association
Tang Wenming	Secretary-General, Guangdong Branch, Chinese Medical Association
Chen Huixian	Staff, Guangdong Branch, Chinese Medical Association
Li Guoyuan	Staff, Guangdong Branch, Chinese Medical Association
Wu Linying	Interpreter from Guangdong Bureau of Light Industry

Zhongshan Medical College, Guangzhou

Che Tianchun	Leading Member
Wu Zhizhen	Leading Member in Charge of Revolution in Education
Chen Guozhen	Professor, Internal Medicine
Liang Guishang	Professor, OB-GYN
Liang Xiuzhen	Neurologist
Zhou Dongliang	Director, Faculty of Hygiene
Chen Liuqiao	Head, Nursing Care

Hosts in Xinhui County, Guangdong

Tang Degnang	Vice Chairman, Revolutionary Committee
Yu Kennian	Deputy Director, County Health Bureau
Liang Xiaoxia	Head, County Office of Planned Birth
Xiao Huayne	Deputy Director, County Antiepidemic Station
Xu Yining	Deputy Director, County People's Hospital
Liu Qiangjian	Deputy Director, County Hospital of Traditional Medicine
Xie Xuqing	Deputy Director, County Maternal and Child Health Station
Yu Huazhao	Foreign Office, Xinhui County

Xinhui County Hospital of Chinese Traditional Medicine

Lei Tingjin	Director
Lin Tianfu	Doctor, Orthopedics
Wang Naochang	Doctor, Internal Medicine
Li Weixing	Head nurse

Xinhui County Maternal and Child Health Station

Chen Qifang	Director
Mo Wenqi	Doctor
Tan Naqiong	Doctor
Chen Liyun	Doctor
Yang Jueling	Head nurse

Xinhui County People's Hospital

Xue Rongqing	Doctor, Internal Medicine
Chen Qiang	Doctor, Surgery
Kuang Tiehe	Doctor, Pediatrics
Chen Yifan	Doctor, OPD
Zhang Peiling	Head nurse

Appendix C

Contents of the Medical Kits of Two Barefoot Doctors and One Health Aide

Barefoot doctor's medical kit in Qixing Production Brigade, Chuanshan Commune (near Guilin), Guangxi Zhuang Autonomous Region

Western medicine
- Adrenaline (1 vial)
- Belladonna (1 plastic bottle)
- Chlor-trimeton (100 tablets)
- Glucose (2 vials, 50%, 20 ml, for vomiting)
- Oxytetracycline (100 tablets)
- Sulfanilamide (1 packet of powders)
- Vitamin C (1 vial)

Chinese medicine
- Antiasthma medicine (50 tablets)
- Antiinfection medicine (50 tablets)
- Antiswelling pain-killer (1 vial)
- Berberine (2 vials, an antibiotic)
- Cold preparation (40 tablets)
- Heat stroke medicine (4 packets of powders)
- Heat stroke medicine (10 vials)

Topical agents
- Iodine (1 plastic bottle)
- Oxytetracycline ointment (1 tube)

Equipment
- Acupuncture needles (5)
- Cotton gauze (1 roll)
- Cotton swabs on sticks (30)
- Pill-wrapping papers (20)
- Stethoscope (1)
- Syringe for giving injections (2 cc) and 3 needles
- Thermometer (1)
- Tweezers (1 pair)

Total value of contents: about 10 yuan ($6)

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Barefoot doctor's medical kit in Yongwei Production Brigade, Sanyang Commune, Taoyuan County, Hunan Province

Western medicine
- Adrenaline (10 vials)
- Atropine (10 vials)
- Dihydrostreptomycin (10 vials)
- Erythromycin (1 vial, to mix with saline solution for injections)
- Nikethamide (10 vials)
- Saline solution (1 vial, for injections)
- Tetracycline (10 vials)

Chinese medicine
- Agrimonine (10 vials, to stop menstrual bleeding)
- Antivomiting medicine (3 vials)
- Berberine (10 vials, an antibiotic)
- Pain-killer medicine (4 packets of powders)
- Pneumonia/bronchitis/enteritis medicine (5 packets of powders)

Topical agents
- Mosquito bite salve (1)

Equipment
- Acupuncture needles (12)
- Cotton balls in alcohol (8)
- Prescription pad (1)
- Stethoscope (1)
- Syringe for giving injections and 3 needles

Health aide's medical kit in Qixing Production Brigade, Chuanshan Commune (near Guilin), Guangxi Zhuang Autonomous Region

Western medicine
- A.P.C., Aspirin-phenacetin-caffeine (1 bottle of 50 tablets)
- Belladonna (1 bottle)
- Chloramphenicol (1 vial)
- Sulfa (1 package of powders)

Chinese medicine
- Anticoughing/antivomiting medicine (1 package of powders)
- Antiinflammation medicine, especially for arthritis (1 package of powders)
- Heat stroke medicine (10 vials)
- Stomach pain medicine (10 vials)

Topical agents
- Disinfectant (1 bottle)
- Iodine (1 bottle)
- Potassium permanganate disinfectant (1 bottle)
- Tetracycline ointment (1 tube)

Equipment
- Adhesive tape (1 roll)
- Cotton squares (6, 4" x 4")
- Cotton swabs (100)
- Sticks (50)

Appendix D

Sample Hospital Record Forms

Injection Card

Bed No	Name	Medicine	Quantity	Method	Time

Heng County People's Hospital
Temperature Chart

Name _____ Department _____ Age ____ Ward No ____ Hospital No ____
Days in Hospital ____
Bed No ____

Date																									
Date of Illness																									
Postoperative Date																									
Admission Date																									
Respiration / Pulse Rate / Temperature (C°)																									Temperature (F°)
Time	4	8	12	4	8	12	4	8	12	4	8	12	4	8	12	4	8	12	4	8	12	4	8	12	
70 180 42																									108
60 160 41																									106
50 140 40																									104
40 120 39																									102
30 100 38																									100
20 80 37																									98
10 60 36																									96
0 40 35																									
Calories																									
Bowel Movements																									
Fluid Intake																									
Urine																									
Sputum																									
Weight																									

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Taoyuan County People's Hospital Nurse Duty Report

19 Yr Mo Day

Shift	No of Patient	New Ad ____ Transfer (In)	Discharge ____ Transfer (Out)	Dead	Departing Nurse	
	Special Care	Total Care	Reg Care	Serious ____ Critical	Operation ____ Delivery	Incoming Nurse	

Transfer of Major Clinical Information

Bed No	Patient's Name	Diagnosis	Clinical Observation

Others

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Hunan Traditional Chinese Medicine College
1st Affiliated Hospital Lab Record

Name _____ Department _____ Ward _____ Bed _____ Hospital No _____

Blood

Date	Hb gm%	RBC 10^6	WBC 10^3	WBC Differential Count (%)					Parasites	Examiner
				Neutrophils	Lymphocytes	Eosinophils	Basophils	Monocytes		

Urine

Date	Color	Turbidity	Sediment	Reaction (pH)	Specific Gravity	Protein	Sugar	Microscopic Exam				Examiner
								RBC	WBC	Pus Cells	Cast	

Stool

Date	Color	Consistency	Blood	Mucus	Ameba	Parasites	RBC	WBC	Pus Cells	Ova	Examiner

Sputum

Date	Condition	Blood	Acid Fast Bacteria	Others	Examiner

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Hunan Chinese Traditional Medicine College
1st Affiliated Hospital Laboratory Chart Lab No _____

Name _____ Ward _____ Bed No _____ Dept _____

Hospital No _____ Age _____ Sex _____

Diagnosis _____

_____

Specimen _____

Reason for Lab Workup _____

___Yr__Mo__Day___ Person Requesting Diagnosis _____

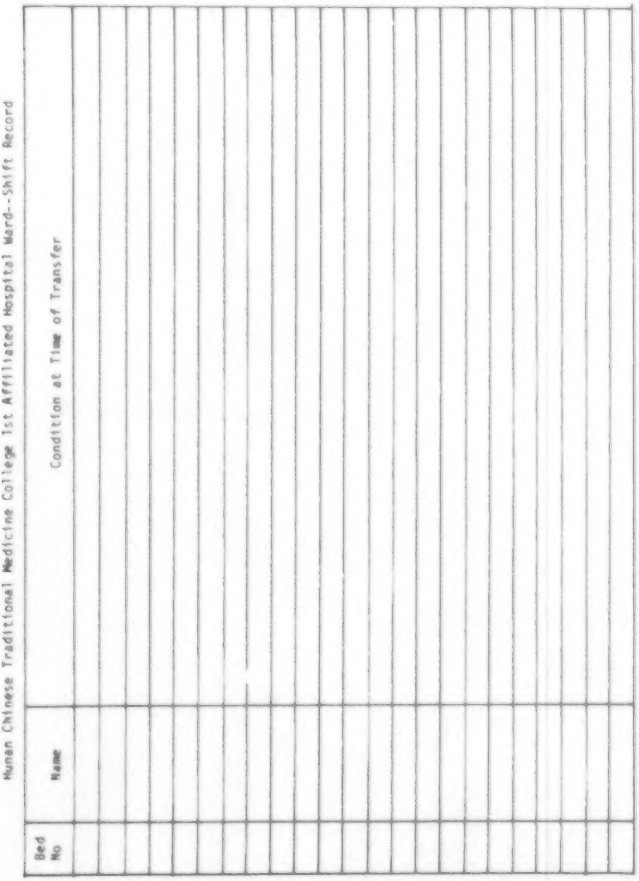
Comment:

Do not write beyond this line.

Laboratory Results:

Specimen

Yr Mo Day Person Reporting Name No


Hunan Chinese Traditional Medicine College 1st Affiliated Hospital Ward--Shift Record
Bed No
Name
Condition at Time of Transfer

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Hunan Chinese Traditional Medicine College 1st Affiliated Hospital

Admission Protocol

Ward_____
Bed No_____

Hospital No: Department:

Name	Sex	Age	Occupation	Race	Previous Record Page
Place of Birth	Opd No		X-Ray No		Marital Status
Address: Present			Admission Date		Yr Mo Day
Address: Permanent			Discharge Date		Yr Mo Day
Work Place			Days in Hospital		

Discharge Diagnosis		Complete Recovery	Marked Recovery	Satisfactory	No Change	Worse	Not Treated	Dead
Traditional Chinese-Type Physician	Western-Type Physician							

Treatment Summary	
Complications	
Residual Complications	

Type of Surgery	Date of Surgery	Healing and Functioning Status

Special Treatment and Precaution After Discharge

Statistics No:

Intern: _____
Resident Physician: _____
Attending Physician: _____
Medical Director: _____

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Heng County People's Hospital

Name _____ Ward No _____ Hosp No _____

Date	Time	Body Temp	P	R	Blood Press	Condition	Signature

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Hunan Chinese Traditional Medicine College
1st Affiliated Hospital
Surgical Ward Information Card

Ward		Bed No		Hosp No	
Name		Sex		Age	
Diagnosis					
Type of Surgery					
Anesthetic		Anes-thetist			
Surgeon			Physician's Assistant		
Instrument Nurse					
Time of Surgery	Mo		Day	Hr	Sec
Reporting Person					

Hunan Chinese Traditional Medicine College Temporary Prescription Card

Patient's Name _____ Hospital No _____ Department _____ Ward _____ Bed No _____

Date	Time	Temporary Prescription	Physician's Signature	Nurse's Signature	Time	Supervisor	Treatment Fee

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Hunan Chinese Traditional Medicine College 1st Affiliated Hospital
Long-Term Prescription Card

Patient's Name _____ Hospital No _____ Department _____ Ward _____ Bed No _____

Date	Time	Long-Term Prescription	Physician's Signature	Nurse's Signature	Supervisor	Termination Date	Termination Time	Physician's Signature	Nurse's Signature	Supervisor	Medicine Fee	Treatment Fee

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Hunan Chinese Traditional Medicine College
1st Affiliated Hospital
Pharmacy Department Prescription

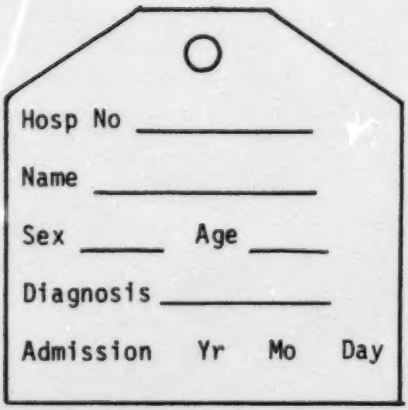
197 Yr Mo Day No

Medication	Type	Unit	Quantity	Dispensing Unit

Recipient Person in Charge

Series No____ Physician_____ Dose____

Treatment Fee $	Herbal Medicine Fee $
Injection Fee $	Medicine Fee $
Acupuncture Fee $	Material Fee $
Surgery Fee $	Total
Total Treatment Expense %	$
Total Amount Collected	$


Hosp No _____
Name _____
Sex _____ Age _____
Diagnosis _____
Admission Yr Mo Day

Appendix E

Sample Infectious Disease Reporting Forms

Chang'an County Infectious Disease Recording Book

Disease

19 Year Month Day

Admission Report Month	Admission Report Day	Name	Sex	Age	Occupation	Place of Illness	Illness Month	Illness Day	Admitted Month	Admitted Day	Recovery Month	Recovery Day	Death Month	Death Day	Patient's Condition Hosp	Patient's Condition Home	Comments

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Guangxi Zhuang Autonomous Region

County (city) designated 24 types infectious disease combined report form

Total number of units that have to report disease condition
Actual number of units reporting this month

*Aff = Affected

Form No (64)
National Hygiene 5 Form

Printing Office
Dept of Hygiene

Authorizing Office
National Statistics Bureau

Designated No	(4)		(5)		(8)		(9)		(11)		(12)		(13)		(14)		(15)		(18)		(21)		(22)		(23)		(24)	
	Infectious Encephalitis		Diphtheria		Bacteria Ameba Dysentery		Typhoid Paratyphoid		Infectious Meningitis		Measles		Ganglio Neuritis		Whooping Cough		Gas Gangrene		Rabies		Infectious Encephalitis		Influenza		Malaria		Leptospirosis	
	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead	Aff	Dead
Total																												
This Year Total																												

Reference: Mass Food Poisoning--total number eating food ; actual number poisoned ; number of persons dead ; actual reporting date

19 Yr Mo Day

Unit Responsible Person (Seal) Recording Person (Seal)

NOTE: Among the 24 nationally designated infectious diseases are:
(1) plague (2) cholera (3) smallpox (6) typhus (7) relapsing fever (10) scarlet fever (16) brucellosis (17) encephalitis (19) tsutsugamushi, and (20) hemorrhagic fever, which are not listed above. If there is any occurrence in the area, please fill in the column at the right.

County (City) Infectious Diseases Report Copy

Reporting Person No _____

Sex _____ Age _____

Patient's Name _____

Address _____

Date of Illness 197 Yr Mo Day

Disease _____

Reporting Date 197 Yr Mo Day

Disease Diagnosed _____

Result: Recovery Death (Date)

Reporting Person _____

County (City) Infectious Disease Diagnosis and Prognosis Report

Reporting Person No _____

Comm Hospital No _____

Patient's Name _____

Original Reported Disease _____

Disease Diagnosed _____

Disease Reporting Date 197 Yr Mo Day

Prognosis: Recovery Death

Reporting Person _____

Report Date 197 Yr Mo Day

County (City) Infectious Diseases Report

Reporting Person No

Patient's Name Sex Exact Age Yr Mo

Occupation: Farmer, Worker, Comrade, Student (Primary, Secondary, College), Kindergarten, Children, Dweller, Housewife, Merchant, Medical Personnel, Teacher, Nursery Personnel, Dietician, Other

Parent's Name Parent's Occupation

Date of Illness Yr Mo Day Place of Illness

Permanent Address

Residing Unit

Method of Management: Home Treatment, Hospital Date

Plague		Infectious Meningitis		
Cholera		Measles		
Smallpox		Radiculoneuritis		
Infectious "B" Encephalitis		Whooping Cough		
Diphtheria		Gas Gangrene		
Typhus Fever		Hookworm		
Relapsing Fever		Malaria	New	
Bacterial Dysentery			Recurrent	
Amebic Dysentery		Hepatitis	Infectious	
Typhoid			Serum	
Paratyphoid				
Scarlet Fever				

Reporting Person Name Reporting Date 197 Yr Mo Day

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Appendix F

Sample Immunization Forms

Preventive Vaccine Reporting Form

		197		197		197		197	
		Vac Req	Act Vac	Vac Req	Act Vac	Vac Req	Act Vac	Vac Req	Act Vac
Smallpox	Initial								
	Repeat								
Measles	Initial								
	Repeat								
Pertussis Diphtheria Tetanus	Initial		1 / 2		1 / 2		1 / 2		1 / 2
	Addi-tional								
"g" Encepha-alitis	Initial		1 / 2		1 / 2		1 / 2		1 / 2
	Addi-tional								
Diphtheria									
Tetanus									

NOTE: For DPT and encephalitis, "1" indicates 1 injection; "2" indicates 2 injections.

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Hanzhong County Different Biological Vaccine Recording Form

Immunization \ Date		Year	Year	Year	Year	Year	Year
Smallpox Vaccine							
BCG Vaccine							
Oral Polio	New						
	Repeat						
Encephalitis	1st Dose						
	2d Dose						
	Addl Dose						
Pertussis Diphtheria	1st Dose						
	2d Dose						
	3d Dose						
	Addl Dose						
Infectious Encephalitis	1st Dose						
	2d Dose						
	Addl Dose						
Tetanus	1st Dose						
	2d Dose						
	Addl Dose						
Measles							
Other							

Preschool Children Preventive Immunization Card

No _____

Name _____ Sex___Date of Birth__ Yr__ Mo___ Parent Name_____

Residence_____ Commune (Town)_____ Major Party (St) _____ Village (Org) _____ Minor Party (No)____

Type	Smallpox		Oral Polio			Measles	Pertussis Diphtheria Tetanus		Diphtheria Toxoid		Tetanus Toxoid		Encephalitis	
Time of Illness														
Time of Vaccination (Month and Year)	Initial Vac	Reaction	I	II	III	Initial Vaccination	Initial Vaccination		Initial Vaccination		Initial Vaccination		Initial Vaccination	
							1	2	1	2	1	2	1	2
	Repeat	Reaction				Repeat								
							Repeat		Repeat		Repeat		Repeat	

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Unit	Parent's Name	Name	Sex	Birth		Smallpox		Measles		Oral Polio Vaccine								DPT Trivalent Vaccine						BCG Vaccine			
										Init Dose		1st Add Dose		2d Add Dose		3d Add Dose		Init Vacc			1st Booster	2d Booster	3d Booster	Init Vacc	1st Booster	2d Booster	
				Year	Month	Init Vacc	Booster	Init Vacc	Booster	I	II III	I	II III	I III	II	I	II III	1	2	3							

"B" Encephalitis											Infectious Encephalitis										
Initial Vaccination		1st Booster	2nd Booster	3rd Booster	4th Booster	5th Booster	6th Booster	7th Booster	8th Booster	9th Booster	Initial Vaccination		1st Booster	2nd Booster	3rd Booster	4th Booster	5th Booster	6th Booster	7th Booster	8th Booster	9th Booster
1	2										1	2									

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